Working in Beam Alley
Made Easy
by Sliding Bar Warp Stop Motions

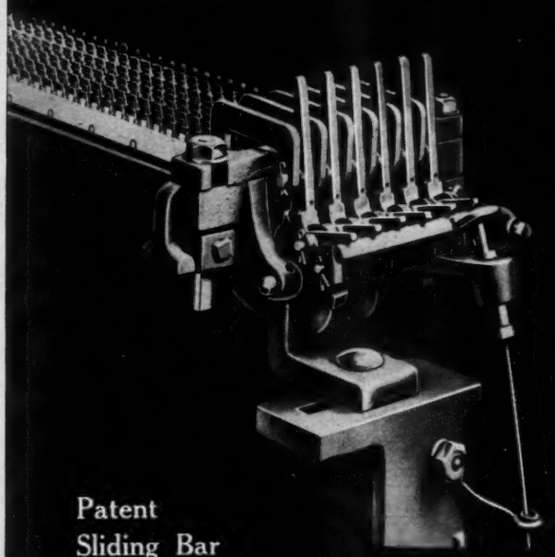
Only Half the Time to Tie in an End

Because Loom Stops

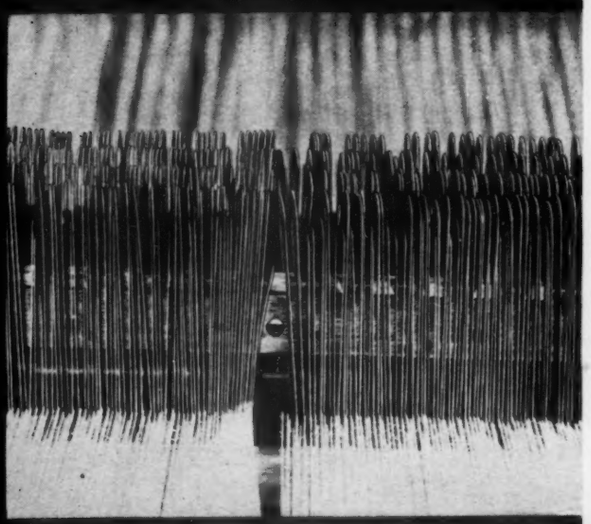
With Shuttle in Left Hand Box
With the Harnesses Level
With Crank on Bottom Center
With Indicator Showing Bank
Where Wire is Down
With Warp Opened at Broken End

Leaving the Weaver Nothing to Do But

Pick up the Broken End
Tie it in
Pull on the Shipper Handle



Patent
Sliding Bar
Warp Stop Motion



Warp Automatically Opened
at Broken End

DRAPER CORPORATION

Hopedale Massachusetts

Southern Offices Atlanta Ga and Spartanburg S C

You can't find a fault, *Mr. Holmes!*

Mr. Sherlock Holmes is hereby challenged to try his hand at finding a defective feature in Tuffer Card Clothing.

Surely he has no comeback in the patented flexible foundation that is guaranteed against shelling out. And the wire—regardless of Mr. Holmes' third degree—won't let sharp crowns, knee and breakage develop. Let him check up on the life of Tuffer and he'll find that, much to his chagrin, it is unusually long. He'll also find more pounds of production and less waste in stock.

But the case of Tuffer Card Clothing is no mystery. For 65 years Howard Brothers has spared no expense or effort in making a card clothing of unquestionable quality. Naturally, a splendid reputation has been built along with it.

Consult a Howard Brothers expert on your particular problem.

HOWARD BROS. MFG. COMPANY

HOME OFFICE AND FACTORY: WORCESTER, MASS.

Southern Plant
244 Forsyth St., Atlanta, Ga.

Branch Offices:
Philadelphia, Pa., Dallas, Texas, and Washington, D. C.

TRADE MARK
TUFFER
REG. U.S. PAT. OFF.

CARD CLOTHING

If you knew the number and size of concerns writing us about Sanforizing you, too, would be interested . . . *NOW!*

THERE is hardly a day but what we receive one or more requests for information about Sanforizing—its possibilities in connection with this or that fabric—the cost of a Butterworth Sanforizer and the time required to deliver and install a complete machine.

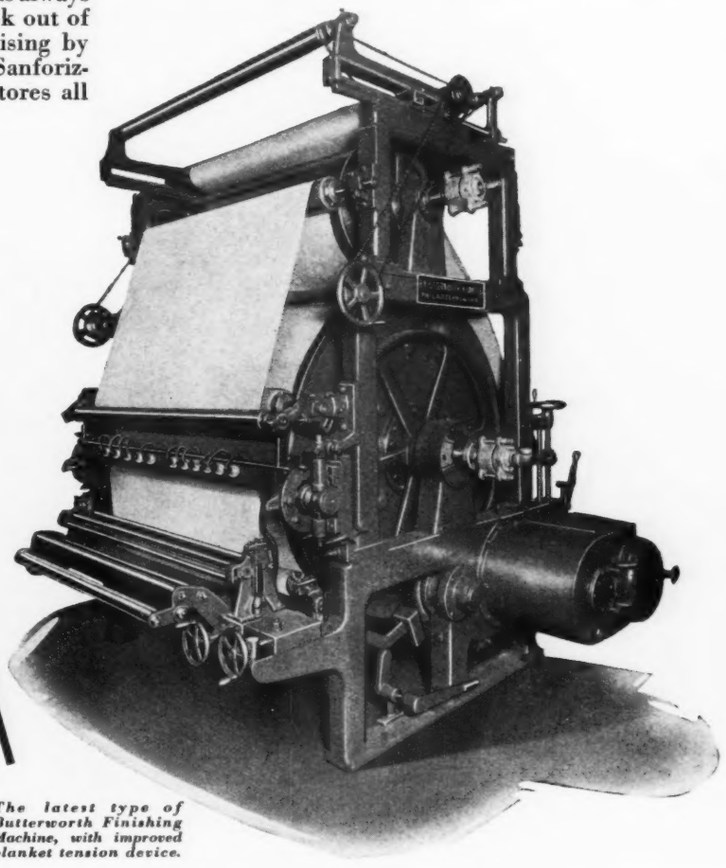
It is safe to say that there is more interest shown in Butterworth Sanforizers today than any other one machine used in textile finishing.

This must be important to you, for sooner or later *every* finishing plant *must* sanforize. The reason behind this is plain—the public has always wanted fabrics which would never shrink out of size, and now, through national advertising by Cluett, Peabody & Co., Inc., owners of Sanforizing patents, plus local advertising of stores all over the country, the public knows that dresses, blouses, shirts, skirts, pajamas, work clothes, and so forth, can be purchased *guaranteed* against shrinking out of size.

Our organization has been licensed by Cluett, Peabody & Co., Inc., to build Sanforizing ranges. These are made complete under one roof; there is no divided responsibility.

Complete literature will be sent promptly and Butterworth Engineers will be glad to discuss with you Sanforizing in connection with your products.

FINISHING plants which have seen the trend toward the demand for goods that will not shrink include such concerns as Delta Finishing Works, Philadelphia; Lanett Bleachery & Dye Works, Lanett, Ala.; North Carolina Finishing Co., Salisbury, N. C.; Pepperell Manufacturing Co., Lindale, Ga.; Ramapo Finishing Co., Sloatsburg, N.Y.; Union Bleachery, Greenville, S.C., and Ware Shoals Bleachery, Ware Shoals, S.C. All of these have installed Butterworth Sanforizers—the Union Bleachery having installed three to keep up with the demand for Sanforized Fabrics and the Pepperell Manufacturing Co., two.



The latest type of Butterworth Finishing Machine, with improved blanket tension device.

H. W. BUTTERWORTH & SONS COMPANY, ***Established 1820***

PHILADELPHIA, PA.

PLANTS *at* PHILADELPHIA *and* BETHAYRES, PA.

New England Office:
TURKS HEAD BUILDING
Providence, R. I.

Southern Office:
JOHNSTON BUILDING
Charlotte, N. C.

In Canada:
W. J. WESTAWAY CO.
Hamilton, Ontario

BUTTERWORTH *Finishing* MACHINERY

A COMPLETE LINE OF FINISHING AND RAYON MACHINERY FOR THE TEXTILE INDUSTRY

OVER
500,000
BALES OF COTTON A YEAR

Are made into laps

on

Aldrich Synchronized Single Process Pickers

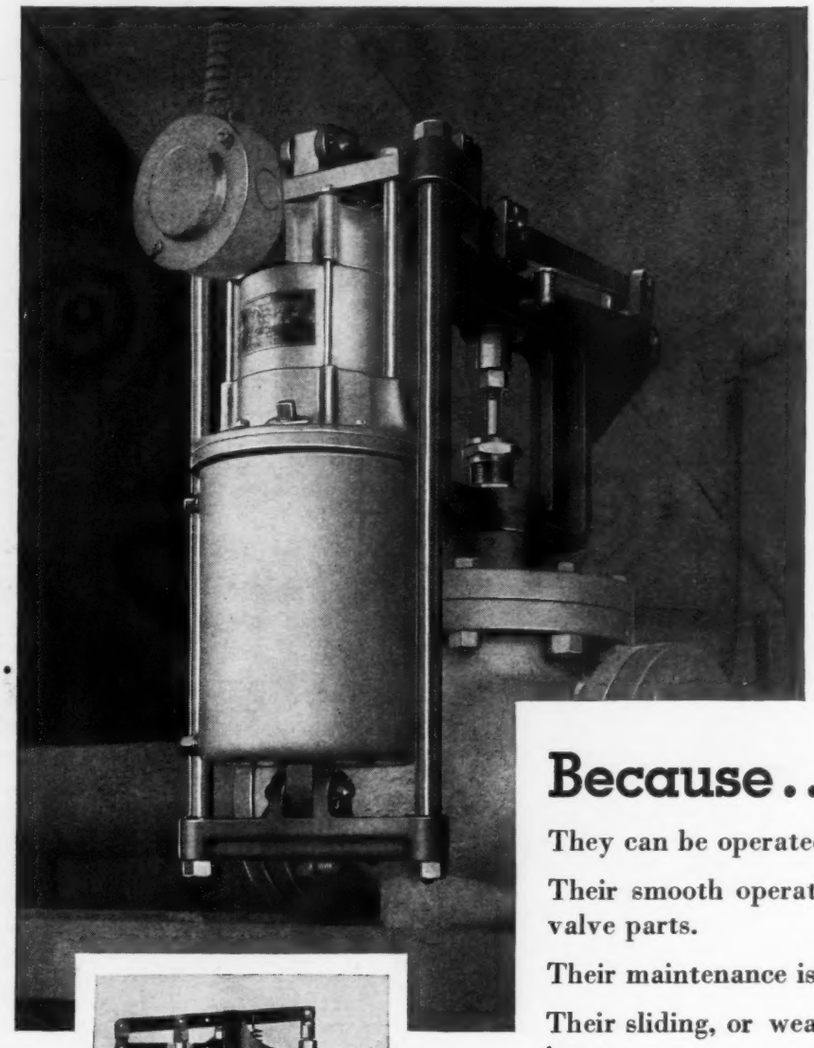
This System Does The Best Work at the Least Cost.

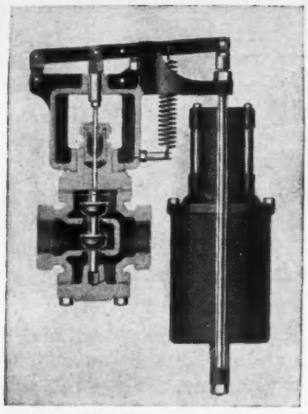
Made and installed by

AldricH MachinE

Greenwood **lorkS** S.! Carolina

Why THRUSTOR Valves?





G-E Thrustor valve of double-seat, balanced type. Uniseat Thrustor valves also available. A wide range to fit every need. Ask for a copy of our publication GES-848, "Why THRUSTOR Valves?"

Because....

They can be operated from a remote point.

Their smooth operation eliminates impact of valve parts.

Their maintenance is negligible.

Their sliding, or wearing, parts are the minimum.

Their operation is easy to change in the field, from normally open to normally closed.

Their motors cannot be overloaded, and they consume little power.

Operation makes for control simplicity.

Get the facts on Thrustor valves—then check up your present valves! Your nearest G-E office will help; or address General Electric Company, Schenectady, New York.

301-116

GENERAL ELECTRIC

Universal High Speed Winders at Threads, Inc., Gastonia, N. C.
Spaced 10' x 14' 0"
Mounted 14' 0" off floor
Wattage 2½ watts per square foot
Intensity 12 to 14 ft. candles

Thread Glazing Machines Lighted by
86 300-watt Glassteel Units
Spaced 10' 0" x 14' 0"
Mounted 14' 0" off floor
Wattage 2½ watts per square foot
Intensity 12 to 14 ft. candles

CONTROLLED LIGHT . . .

Day or Night, BETTER, SURER, *more profitable*

THESE photographs show the winding area and thread glazing areas and machines of Threads, Inc., Gastonia, N. C., with their modern lighting, having an intensity of 12 to 14 foot candles. The rooms are literally bathed in light —glareless! shadowless! energizing!

Threads, Inc., manufacture thread of every size, type, finish and color for cutting-up trades. Good workmanship, uniformity, dependability and accuracy in finishing and spooling are the things they sell. They guard the services of this plant and its machinery by controlled lighting.

Raw light is hard on the eyes. Controlled light is kind to the eyes. And here they profit from controlled lighting with an intensity of 12 to 14 foot candles.

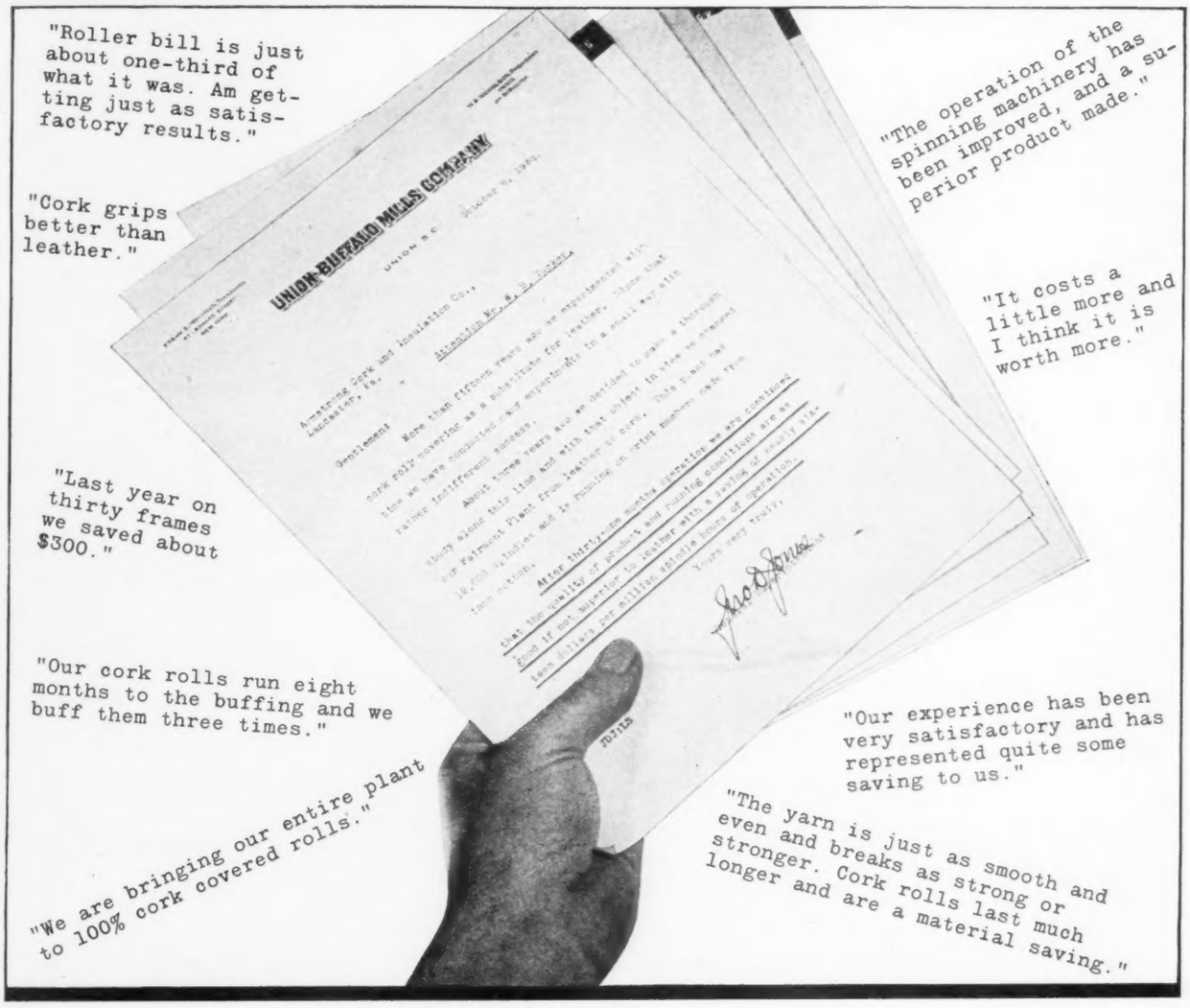
Mr. J. Gottlieb, president, Threads-Incorporated, writes: "We thought you would be as pleased as we are to know that the production per operator, per hour, is approximately 10% higher at night than in the day time. . . . Well planned lighting permits our operators to take advantage of every factor tending towards higher production".

Experience proves again and again that *controlled* light is better! That *controlled* light pays dividends in cash. And the whole textile industry is awakening to this truth. Poor lighting adds to your costs. Controlled lighting adds to your profits.

The same lighting engineering skill and experience that planned this job are available to you without cost. Write General Electric Company, Nela Park, Cleveland, Ohio.

GENERAL ELECTRIC

MAZDA LAMPS


"Roller bill is just about one-third of what it was. Am getting just as satisfactory results."
"Cork grips better than leather."
"Last year on thirty frames we saved about $300."
"Our cork rolls run eight months to the buffing and we buff them three times."
"We are bringing our entire plant to 100% cork covered rolls."
"The operation of the spinning machinery has been improved, and a superior product made."
"It costs a little more and I think it is worth more."
"Our experience has been very satisfactory and has represented quite some saving to us."
"The yarn is just as smooth and even and breaks as strong or stronger. Cork rolls last much longer and are a material saving."
UNION-BUFFALO MILLS COMPANY

WOULD YOU LIKE TO READ *our* MAIL?

THESE are not *our* words. They are statements made by mill owners themselves about Armstrong's Seamless Cork Cots. They are based on actual experience of leading mills . . . mills that have saved 60% (on a conservative average) on their roll covering costs with these cots. Mills whose spindlage is over 25% of the industry's total.

Consider for a moment. *Can you afford to shut your eyes to the savings and other proven merits of cork rolls?*

More than 100 mills, spinning 2s to 120s, are proving to themselves every day the economy of Armstrong's Seamless Cork Cots. And not only are their costs cut 60% or more, but their running conditions are improved. They write us that "eyebrows" are eliminated, that lap ups and hard ends are giving them less trouble than ever before, that there is less bunching and end breakage . . . more even yarn is produced.

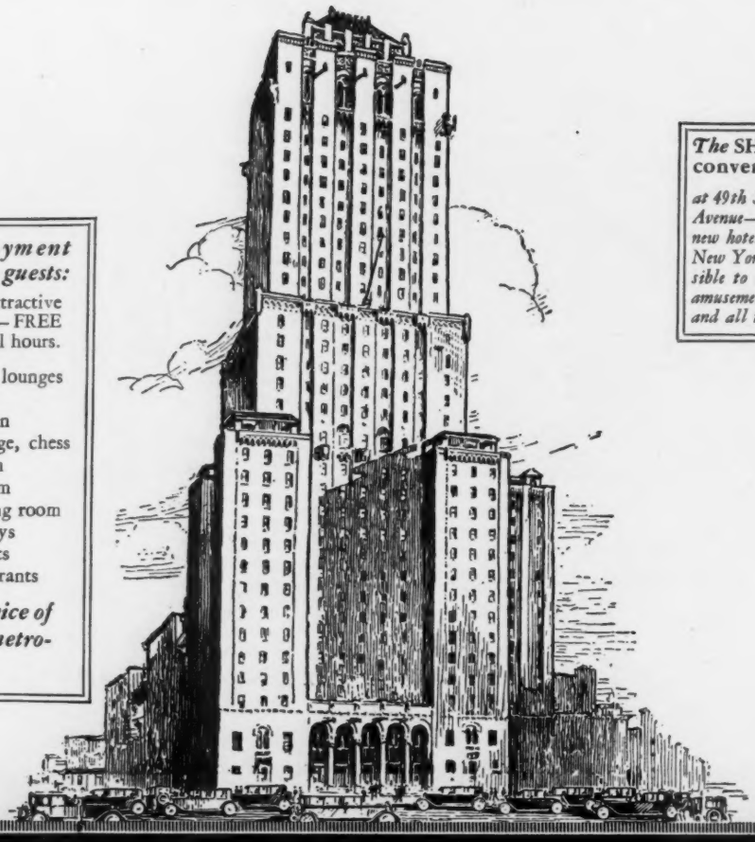
Write for free book of data

Read the actual cost studies made by the mills themselves . . . complete details of the many advantages of Armstrong's Seamless Cork Cots. Send for your copy of "The Facts about Armstrong's Seamless Cork Cots" *today*. Address Armstrong Cork & Insulation Company, Cork Division, 923 Arch Street, Lancaster, Pennsylvania.

Armstrong's (A) Product

Armstrong's SEAMLESS *Cork Cots*

For Spinning and Card Room Rolls



For the enjoyment of SHELTON *guests:*

A large and attractive swimming pool — FREE to all guests at all hours.

Four comfortable lounges
Solarium
Roof Garden
Game rooms—bridge, chess
Gymnasium
Billiard room
Library and reading room
Bowling alleys
Squash courts
Excellent restaurants

and every service of a first class metropolitan hotel.

The SHELTON is most conveniently located

at 49th Street and Lexington Avenue—in the center of the new hotel district of mid-town New York, and easily accessible to all smart shops, the amusement life of the city and all transportation.

The SHELTON

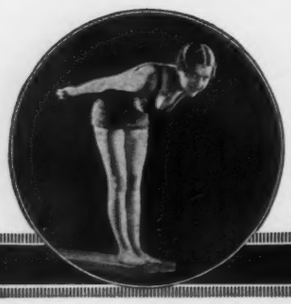
New York's most unusual hotel

An outstanding favorite among visitors to the city. Combines the attractions of a private club and metropolitan hotel

A UNIQUE, club-like atmosphere most unusual to find in a metropolitan hotel. Where visitors to the city may enjoy themselves as much as though they were guests of a large private club. Yet in spite of its many extra attractions the room charges are no higher than you have to pay in other high class hotels where the most you can expect is the ordinary "room and bath." You'll like *The* SHELTON.

$2.50 to $3.50 a day for one person; $4.00 and $4.50 a day for two; larger accommodations always available. Special rates for those staying a month or more.

The SHELTON - - - New York
at 49th Street and Lexington Avenue



Ready for a plunge in *The* SHELTON'S famous swimming pool

TIME
has proven these *high quality* paint products
MOST ECONOMICAL
for Textile Mill *and* Village Maintenance

SAVE-LITE MILL WHITE: A perfect Mill White Finish for interior walls, ceiling and woodwork. Furnished in Gloss, Eg-Shel and Flat.

SAVE-LITE FUME-RESISTING WHITE: Especially resistant to chemical and acid fumes. Furnished in Enamel, Semi-Flat and Flat finishes.

SAVE-LITE MOISTURE-RESISTING WHITE: Made to resist high humidity and excessive moisture. This finish furnished in Flat only.

MILL VILLAGE PAINT: A high quality exterior finish for mills and mill villages. Unusual covering capacity and long life.

VELVET ENAMEL: An ideal Semi-Gloss Enamel that gives an attractive finish for interior cottage and office finishing.

VELVET WALL FINISH: An ideal flat wall finish for interior cottage and office finishing.

KROMIK STEEL PRIMER: Highest Quality Primer for structural steel and all metal surfaces.

METALASTIC: High Quality Metal Protective Finishing Paint.

EBONOL: An excellent black paint for exterior work. Acid-free; very durable; highly recommended for use on prepared "rubber" roofing, metal and skylights, flashing and down-spouts. Will not run or dry out under extreme hot rays of sun. Sets in 24 hours.

LIQUID ROOF CEMENT: Recommended for repairing all types of roofs. Furnished in Black, Red and Green.

ELASTIC ROOF CEMENT: A plastic cement containing asbestos fibre, making it an ideal cement for patching roofs.

S&W DISINFECTANTS: Furnished in various coefficient strengths for all needs around textile plants and villages.

NOTE: Textile Offices at Philadelphia, Charlotte, Spartanburg and Atlanta. Our warehouses at Charlotte and Spartanburg carry stock for prompt service and convenience of the textile trade.

STANDARD PRODUCTS FOR TEXTILE MILLS AND VILLAGES

Plant of Broad River Mills, Blacksburg, S. C.

Village of Beaumont Mfg. Co., Spartanburg, S. C.

COVER THE EARTH

SHERWIN-WILLIAMS

115 YEARS OF SIZING PROBLEM EXPERIENCE

Arnold, Hoffman chemists and engineers have behind them over 115 years of experience devoted exclusively to solving sizing, softening, finishing and weighting problems. At their command they have the most complete facilities to work out solutions to your specific problems. The Arnold, Hoffman line includes Gums, Sizing Compounds, Oils, Soaps, Dextrines and Chemicals of the highest quality. They are promoting faster production, real savings and more salable textiles for hundreds of mills. Write for details.

ARNOLD, HOFFMAN & CO, INC.

PROVIDENCE - NEW YORK

CHARLOTTE · PHILADELPHIA · BOSTON

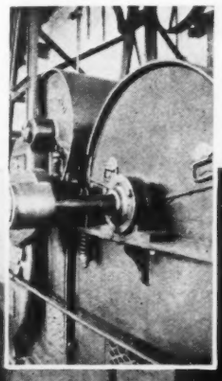
PRODUCTS—Warp Dressing, Finishing Materials, Soluble Gums, Sizing Materials, Soaps, Soluble Oils, Sulphonated Oils, Alizarine Assistant, Pigments, etc.

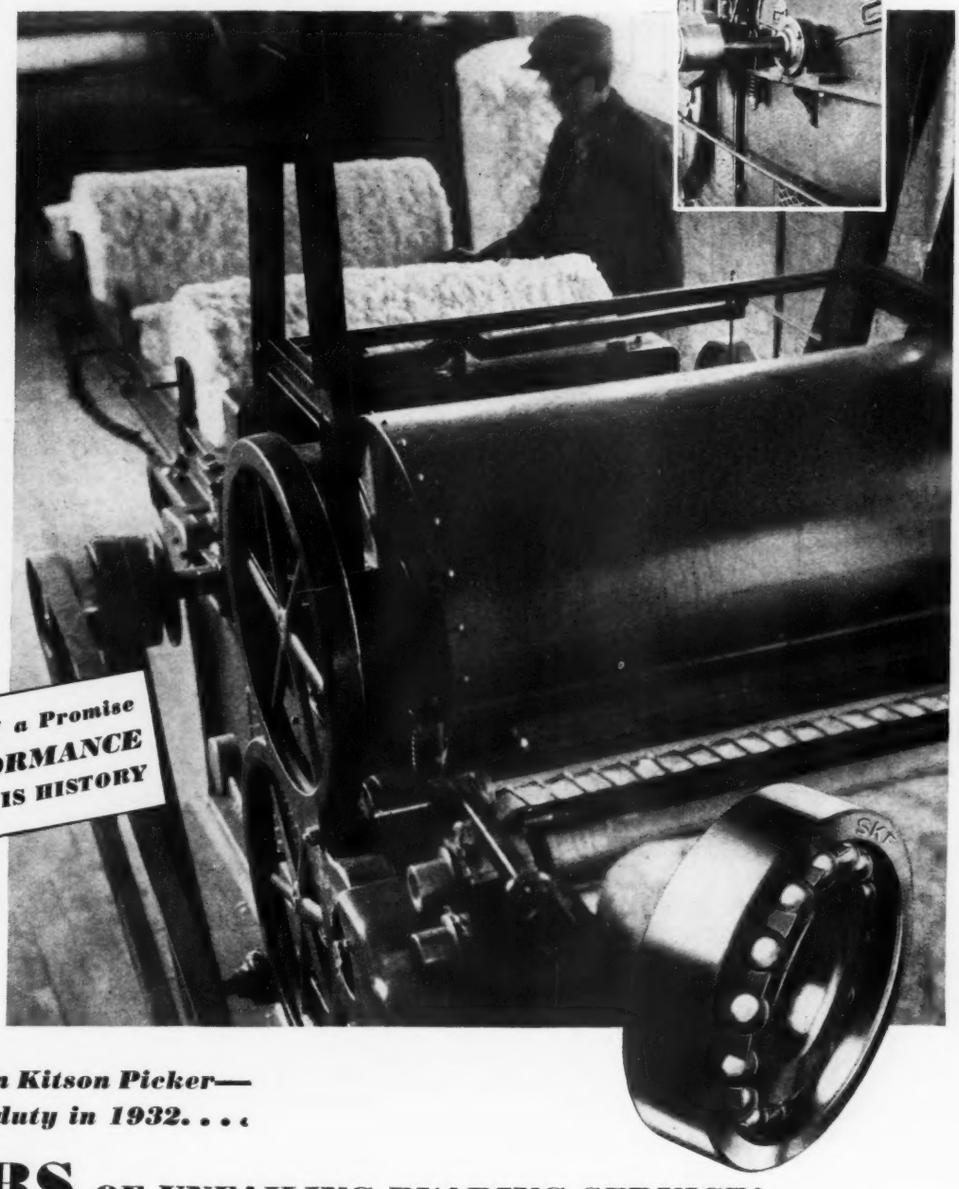
SOLE AGENTS FOR Belle Alkali Company of Belle, W. Virginia. Liquid Chlorine, Bleaching Powder, Caustic Soda (Solid and Flaked).

SKF BEARINGS *that are*

OLD ENOUGH TO VOTE

Kitson Picker in Perkins Hosiery Mills, Columbus, Ga. SKF Bearings have been performing on this picker for 22 years without "giving a minute's trouble." And they still fail to show appreciable wear!





Installed in 1910 on Kitson Picker— they're still doing duty in 1932. . . .

22 YEARS OF UNFAILING BEARING SERVICE!

IMAGINE bearings that have been in service for 22 years and yet, because they still fail to show appreciable wear, are actually 22 years young. Imagine bearings that have been running steadily since 1910 without "giving a minute's trouble" and that today show that they are capable of serving for many years more.

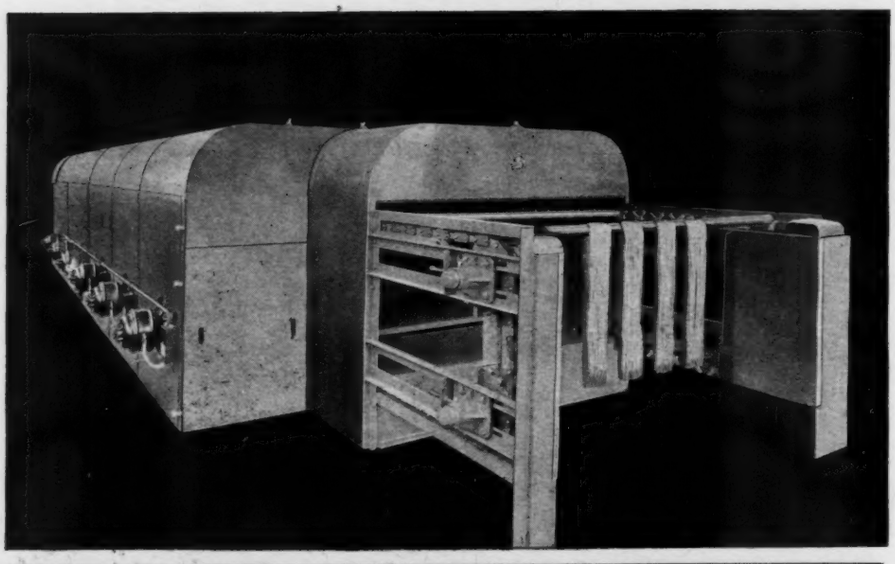
No other bearing in all the world has even approached the performance records that SKF has established, for the reason that no other bearing in all the world has the same background of quality. SKF steels come from special ores from SKF mines. SKF widespread laboratories provide a fund of bearing data drawn from all parts of the world. SKF plants are specialists in bearing design and production. And, finally, SKF Bearings always are made to fit the job, never to meet the figure on a price tag.

Never be tempted by low purchase price when performance is the thing you want. **SKF** INDUSTRIES, INC., 40 East 34th Street, New York, N. Y.

2922

SKF
BALL AND ROLLER BEARINGS

Another New Sargent Dryer



New Sargent Skein Dryer

NEW DESIGN THROUGHOUT

Highly efficient centrifugal type fans—Are direct connected to motors—No lost power and delays due to belting and counter shaft troubles—All bearings outside the dryer housing—Modern type heaters increase efficiency and conserve floor space—Variable speed control and completely enclosed motor drive on conveyor—No additional safety guards required.

OTHER MODERN SARGENT DRYERS INCLUDE . . .

One Apron Raw Stock Dryers
Three Apron Dryers
Cloth Carbonizing Dryers
Loop Dryers
Backwash Dryers
Truck Dryers for Packages, etc.
Laboratory Test Dryers
Special Dryers for any purpose

C. G. SARGENT'S SONS CORPORATION

Graniteville, Mass.—Founded 1852

Southern Agents
Fred H. White, Charlotte, N. C.
Fred P. Brooks, Atlanta, Ga.

Philadelphia Agent
R. C. Jefferson Co.
640 Drexel Bldg.

SARGENT IS THE PIONEER AMERICAN BUILDER OF DRYERS

SUPERTEX penetrates

TRADE NAME REGISTERED AND PROCESS PATENTED

A print made with Supertex. Note the complete penetration of the printing, evident from a glance at the right and reverse sides of the cloth.

This new printing gum produces clear, deep prints in all fabrics.

SUPERTEX is a transparent and thoroughly cleaned printing gum used in conjunction with Hydrosulphite A.W.C. for white discharges. This gum is completely and easily soluble and contains no impurities.

Because of the complete solubility and absolute purity of Supertex, the Hydrosulphite is uniformly distributed throughout the discharge paste and carried right into the fibre. It is not merely deposited on the surface of the material. This thorough and uniform penetration of the discharge paste gives sharp outlines, even, clear whites and perfect discharge on both the right and reverse sides of the fabric.

After steaming, the decomposition products of the Hydrosulphite are readily removed by a light wash, leaving the goods soft and strong with a uniform and clear white discharge.

Supertex has no equal for penetration. Printers everywhere, working with all fibres, are obtaining results hitherto considered impossible.

We suggest an immediate comparison of Supertex with any product you now use—your own tests will convince you of the many fine and superior qualities of this new printing gum.

JACQUES WOLF & CO.

Manufacturing Chemists and Importers

PASSAIC, N. J.

WAREHOUSES: • PROVIDENCE, R. I. • PHILADELPHIA, PA. • UTICA, N. Y. • CHICAGO, ILL. • CHATTANOOGA, TENN. • GREENVILLE, S. C.

Labels Tickets Bands

BRANDED textile goods penetrate markets which others find difficult or impossible to enter. And once established they resist assaults of unbranded products and assure their makers steadier production with consequent larger profits.

An experience of many years coupled with mechanical facilities equaled by few other organizations in the country enables us to offer exceptional service to textile manufacturers and selling agencies in the design and production of labels, tickets, bands, hang tags and bolt ends.

This service includes both original design by artists thoroughly familiar with textile packing technique and faithful reproduction of designs already in use. Highest quality of workmanship goes hand in hand with charges which usually mean substantial savings to purchasers.

We shall find pleasure in submitting idea sketches for new designs and in quoting on any type of textile label or band---all without obligation.

JACOBS GRAPHIC ARTS COMPANY

DESIGNERS AND PRODUCERS OF TEXTILE PACKINGS

CLINTON___SOUTH CAROLINA

"those Papers!"

'bout Sodium Hydrosulphite for 1933

WELL . . Don't Sign 'em! . . until you've heard some details . . tried a working sample . . *thought* some about Vatrolite!

That's the new output of the Royce laboratories . . named for what it *does!* . . Stripping! Color reduction in the Vat!

VATROLITE tests up to expectations . . may go beyond. You be the judge of that! It is pure, full strength . . above all, *uniform!*

VATROLITE is amply stocked for prompt withdrawals. Ready for your instant needs . . large or small. Packed in damp-proof drums of 50, 100 and 250 lbs. weight.

VATROLITE
SODIUM HYDROSULPHITE
REG. U.S. PAT. OFF.

Work out some VATROLITE as a test run. We'll send a generous working sample . . *free!*

ROYCE CHEMICAL COMPANY
Manufacturing Chemists
CARLTON HILL · NEW JERSEY
NEW ENGLAND REPRESENTATIVES: RICHARD HAWORTH, Inc., 25 FOUNTAIN STREET, PROVIDENCE, R. I.

Made by the originators of DISCOLITE and VELVORAY

removing

STARCH, WAXES AND PECTIN MATTER

...in a single operation!

COTTON — DIAZONOL A. C. is not an enzyme compound and has no fatal temperature point.

In fact DIAZONOL A. C. does its most efficient work at the boil and may be used directly in the kier, in a jig or continuous machine to desize and boil out in one operation.

Using DIAZONOL A. C. will save the time you formerly had to spend in premalting.

DIAZONOL A. C. is soluble in hot water and can be added directly to the kier while being charged.

RAYON — DIAZONOL A. C. works efficiently alone for desizing and boiling off rayon fabrics on a jig or oval reel machine.

Its efficiency as a detergent will remove all insoluble oils and gums in the boil-off operation, producing a better foundation for the dyeing of light shades.

DIAZONOL A. C. actually preserves the original lustre and tensile strength of the fibre.

DIAZONOL A. C. will speed your processing. It gives excellent results on all types of cotton and rayon fabrics.

Write us for complete information

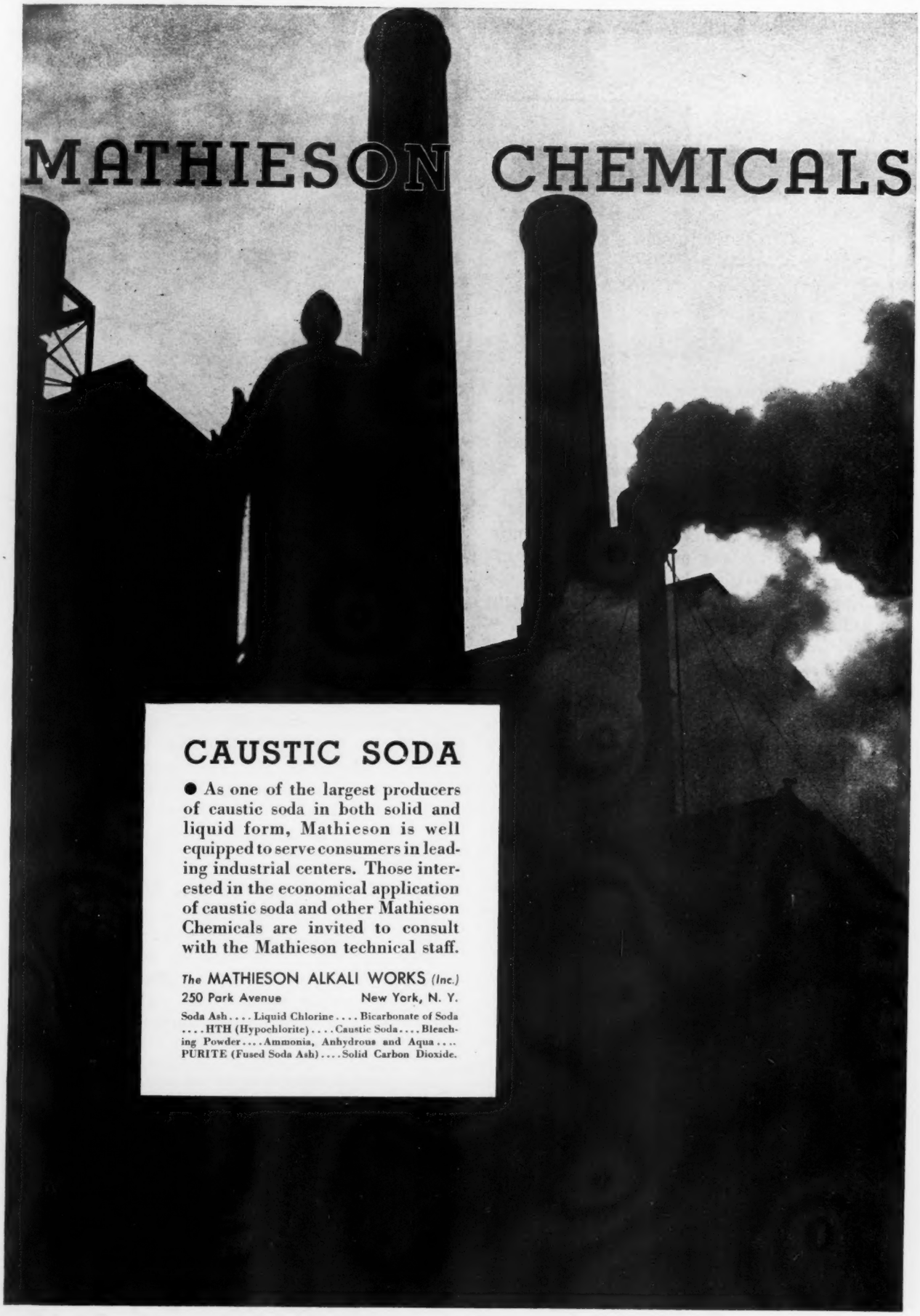
Put your problems up to our industrial laboratory. 30 years experience is at your command. We can probably solve your difficulty in short order.

ARKANSAS COMPANY · INC·

233 BROADWAY NEW YORK

AC INC REG. U. S. PAT. OFF.

CHEMISTS TO THE TEXTILE INDUSTRY



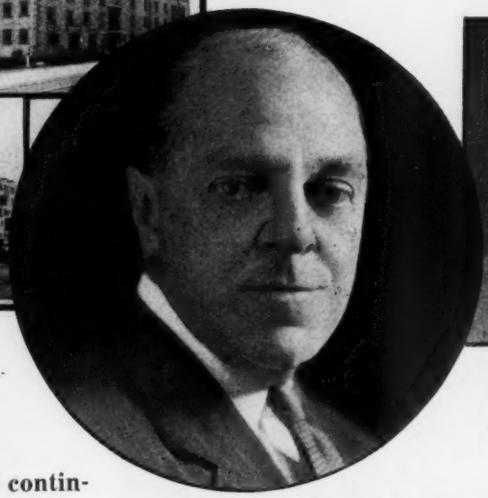
CAUSTIC SODA

● As one of the largest producers of caustic soda in both solid and liquid form, Mathieson is well equipped to serve consumers in leading industrial centers. Those interested in the economical application of caustic soda and other Mathieson Chemicals are invited to consult with the Mathieson technical staff.

The MATHIESON ALKALI WORKS *(Inc.)*
250 Park Avenue New York, N. Y.

Soda Ash . . . . Liquid Chlorine . . . . Bicarbonate of Soda . . . . HTH (Hypochlorite) . . . . Caustic Soda . . . . Bleaching Powder . . . . Ammonia, Anhydrous and Aqua . . . . PURITE (Fused Soda Ash) . . . . Solid Carbon Dioxide.

24 Years the Leader *in its field*



Sydney W. Fiske, 24 years active manager of the Diastafor Department.

Howard L. Jenkins, technical expert, who has been contacting the Textile Trade for the past 12 years.

THE history of Diastafor is one of continued growth and progress. This famous sizing, de-sizing and finishing agent was first offered to the Textile Industry in 1908 by the American Diamalt Company, a subsidiary of the Fleischmann Company. Accepted instantly by leading mill owners, its popularity has increased through the years.

In 1923, when the American Diamalt Company was taken over by The Fleischmann Company, Diastafor became known as Fleischmann's Diastafor. And in 1929, when the Fleischmann Company was made part of Standard Brands Incorporated, Fleischmann's Diastafor became one of its many important products.

During all these 24 years, Mr. Sydney W. Fiske has actively managed the Fleischmann Diastafor Department. Well known to the Textile Industry, Mr. Fiske has devoted his entire time to the marketing and improvement of this now-famous textile product . . . and to serving the Industry. For the past 12 years he has been ably assisted by Mr. Howard L. Jenkins, a familiar figure to all textile men. Mr. Jenkins is a technical expert and is always available in solving problems of sizing, de-sizing and finishing.

Mill owners in the United States, Canada and South America, have found that in using Diastafor they actually get more than a dependable quality product. They get an unparalleled service, insuring an unfailing supply and personal assistance. For, Diastafor has not one, but *three* factories.

Warehouses strategically located so that every mill will always be able to get prompt service. And in its laboratories, continuous and exhaustive research is carried on by expert technicians, so that its manufacturers have been always able to supply a product of unfailing strength, consistency and color.

Diastafor, applied to Rayons, mixed goods and cottons, does a complete job of stripping starch without impairing the tensile strength or injuring delicate fibres. And with the recent improvement . . . making the color lighter . . . Diastafor can be used on white goods without danger of discoloration. Thus, it insures perfect dyeing and bleaching.

For further information, let our technical man advise, or write to—

FLEISCHMANN'S DIASTAFOR

DIASTAFOR DEPARTMENT

STANDARD BRANDS INCORPORATED

595 Madison Avenue — New York City

Vol. 96 **COTTON** No. 11

November, 1932

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director

ROBERT W. PHILIP, Editor

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Published Monthly by

W. R. C. SMITH PUBLISHING COMPANY

Atlanta, Ga.

JOHN B. SHAW, *sales manager*, 39 Grove St., Auburndale, Mass. Boston Exchange, West Newton 1031.
W. S. CUSHION, *vice president*, 506 The Arcade, Cleveland, Ohio.
JOHN C. COOK, *western manager*, Room 864, 228 No. LaSalle St., Chicago, Ill.
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PUBLISHED MONTHLY
ANNUAL SUBSCRIPTION—$1.00
CANADA—$1.50; FOREIGN—$2.00

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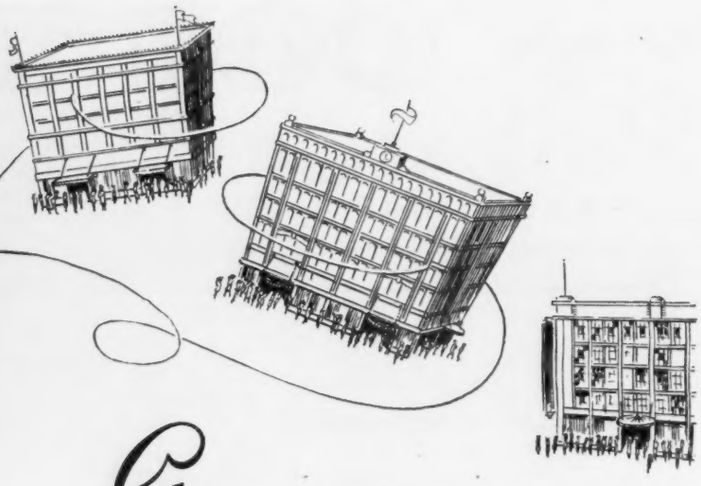

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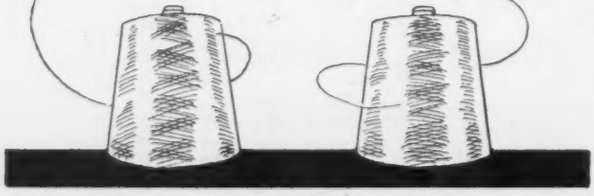

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Vol. 96
No. 11

COTTON

November,
1932

A Practical Analysis of Large Package Spinning

By "Flange"

THIS practical discussion "takes the matter of large package spinning apart in an effort to see what makes it tick". It is based upon careful study of most of the southern installations of large package equipment by a man well qualified to analyze the subject.

The author acknowledges the valuable assistance rendered by a number of superintendents in aiding his investigations, and his conclusions are presented here as a distinct contribution to the study of this notable development in ring spinning . . . . .

"WHY the tendency to large package spinning?" can be answered concretely by this example: A mill spinning 7s to 13s yarn on 2⅛-inch rings had a labor cost of 1.25 cents per pound in the spinning room and .45 cent in the spooler room; total, 1.70 cents per pound. With the present large package installation, consisting of part 2½-inch and part 3-inch rings, these costs are .60 cent and .275 cent; total, .875 cent per pound. These figures are pre-depression and are comparative.

The search for facts about large package spinning reveals that it is still in the experimental stage. Its limits and applications are not, as yet, well defined. It is interesting, however, to consider the factors involved and to record noteworthy large package installations.

Building spindles equal to the task of carrying the larger diameter, longer traverse packages has been accomplished, with spindle speeds as high or higher than those maintained under the small package system. The aversion of treasurers to wide gauge frames because of the increased cost per spindle and the additional floor space required for installation has in many instances vanished in considering long range economies. The advent of high-speed winding or spooling and warping often has made available floor space for the installation of the wider gauge frames. The prejudice against separators, on the part of the practical men, has been overcome to a great extent by improvements in the design of the separators, and by the realization that a separator blade at the right place and the right time is an asset.

A limiting factor of first importance in large package spinning is the speed of the traveler. For years spinners have thought of speeds in terms of revolutions of front rolls and spindles. They are becoming more and more traveler-speed conscious.

Traveler speed is usually considered in terms of feet per minute. If the ring diameter is 2-inch, then the circumference is 2 inches $\times$ 3.1416, making 6.2832 inches or 0.5236 foot. With a spindle speed of 10,000 r.p.m., no allowance being made for traveler lag, the traveler speed would be 5,236 feet per minute. (To avoid complicating this matter of traveler speed unnecessarily, all such speeds given in this discussion do not take into account the lag of the traveler, this usually amounting to somewhere near one per cent of the figured speed).

The Effect of Centrifugal Force

But consideration of the speed of the traveler alone does not suffice. We must consider also its centrifugal force, the force that throws it away from the center of the spindle and makes it bear against the ring flange.

The formula for centrifugal force is:

$$\text{Centrifugal Force} = \frac{\text{Weight} \times (\text{Velocity in feet per second})^2}{32.16 \times \text{Radius in feet}}$$

Thus, if a traveler weighing one grain be run on a 2-inch ring with a spindle speed of 10,000 r.p.m., which would mean 87.3 feet per second traveler speed, we would have

$$\text{Centrifugal Force} = \frac{1 \times (87.3)^2}{32.16 \times 1/12} = 2{,}844 \text{ grains.}$$

That a little traveler, weighing one grain, should be thrown against the flange of the ring with a force of approximately 6½ ounces is not generally recognized. Were it not for some offsetting pull of the yarn from the traveler to the bobbin, this bearing force would be often realized and exceeded, even in spinning to say nothing of in twisting.

To have clearly before us the forces and tensions in the yarn and those acting on the traveler, Fig. 1 is submitted. The amounts of the forces shown were determined at the Texas Technological College under the direction of Carl D. Brandt. The figures given would have to be changed for the different winding

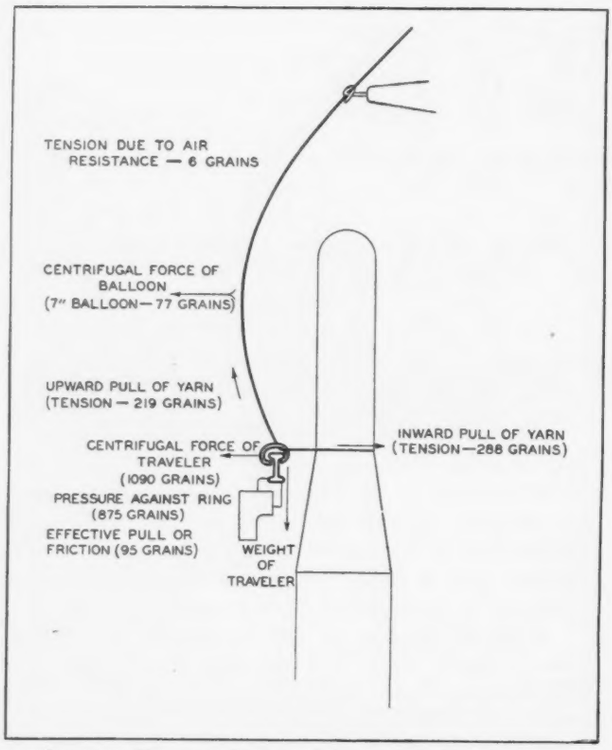
TENSION DUE TO AIR RESISTANCE — 6 GRAINS
CENTRIFUGAL FORCE OF BALLOON (7" BALLOON—77 GRAINS)
UPWARD PULL OF YARN (TENSION — 219 GRAINS)
CENTRIFUGAL FORCE OF TRAVELER (1090 GRAINS)
INWARD PULL OF YARN (TENSION—288 GRAINS)
PRESSURE AGAINST RING (875 GRAINS)
EFFECTIVE PULL OR FRICTION (95 GRAINS)
WEIGHT OF TRAVELER

Fig. 1. Showing forces and tensions in yarn and acting on traveler.

This illustration is for 23s warp, filling wind; 1⅞-inch ring, 3¾-inch gauge, 7,200 r.p.m. spindle speed. Figures from Carl D. Brandt, Texas Technological College . . . .

diameters and positions of the ring rail, and for simplicity's sake the forces are recorded for only one set of conditions.

The pioneers in large package spinning assumed that since the formula for centrifugal force has the radius of the ring in the denominator that the larger the ring the less the force with which the traveler would bear on the ring flange. At a given traveler speed this holds true, but if the same spindle speed is maintained with the larger diameter ring, the traveler speed is increased, and the centrifugal force increases as the square of this speed. The theory that heavier travelers could be used on the larger diameter rings has not held true for this reason, and actual examples of its failure are given further along in this article. Most spinners, in reading this statement, will make the comment that everyone should know that larger rings require lighter travelers to give the same tension in the yarn between the traveler and the bobbin. The answer to that comment is that they would have in mind using the same diameter bobbin on the small and large rings. Where large package installations have been made the bobbin diameter has been increased sufficiently with the ring diameter to keep the angle of the yarn pull through the traveler from becoming too acute.

The hardest large package spinning problem yet to be solved is this one of the speed of the traveler, its centrifugal force, and resultant wear. The usual traveler life on 3-inch rings of from 35 to 110 hours cannot be said to be satisfactory.

A traveler on a large ring at a given spindle speed makes no more revolutions than on a small ring. Its speed in feet per minute is greater but its revolutions no more. Therefore, one might think the wear of the the large ring would be no greater than that of the small ring. However, the greater wear of the traveler on the large ring will certainly affect the life of the ring. Ring replacements may or may not affect the long-run economies of a large package installation appciably. A factor favorable to satisfactory traveler and ring life where large rings are used is that the traveler does not change direction as sharply as on small rings, i.e., its motion comes nearer to being in a straight line. This point has been illustrated by the greater wear that takes place on automobile tires when run on circular tracks of small diameter than is the case on larger diameter tracks.

Leaving Plane of Traveler Undisturbed

One smart spinner, who has one frame spinning 23s yarn from 1 3/16-inch cotton on 3-inch No. 2 flange rings, 9-inch traverse, 8,000 r.p.m. spindle speed, 6,283 feet per minute traveler speed, says the secret of success in large package spinning is to allow the traveler to move in a plane free from sudden change. To this end he has equipped his frame with a builder cam of special design, so that the ring rail traverses and changes direction slowly, yet builds a filling wind package that does not slough off in spooling or winding, and which leaves the plane of the motion of the traveler as undisturbed as possible. Travelers were lasting 110 hours on this frame at last account.

The traversing thread board has been revived as an aid in this problem of keeping the traveler balanced. Longer traverses are attained by its use, and while the relation of guide wire to ring rail is not constant, this is more nearly achieved than where the stationary thread board is used. The effort to accomplish this fixed relationship between guide wire and ring rail by means of stationary ring rails and traversing spindle rails has not been worked out satisfactorily enough to date to warrant adoption by the mills in this country to any great extent.

Greater air resistance or friction and consequently more fraying or "fuzzying" of the yarn is an inevitable result of larger packages. Practically all of the large package installations that the writer has seen have been aided by improved drafting systems, so that better quality yarns are being made than formerly. Also, these installations are all on coarse weaving yarns where a little "fuzziness" more or less causes little concern. Recently a mill on fine yarns ran a frame of 1-inch rings on 100s against the regular equipment of 1⅜-inch rings, and that there was not one-third the "fuzziness" on the yarn spun on the 1-inch rings that there was on the bobbins spun on the 1⅜-inch rings is not an exaggeration.

"The Nigger in the Woodpile"

The writer admits that in investigating large package spinning he has been looking constantly for the "nigger in the woodpile". As in the case cited previously, where 23s is being spun on 3-inch rings, he feels the "nigger" is in the 1 3/16-inch cotton. The question is whether, using ordinary stock in spinning

23s, satisfactory results can be obtained with that layout and speed.

One interesting installation in this connection is that of a mill on waste yarns, 2s and coarser, with 3-inch No. 3 flange rings, 9½-inch traverse, filling wind, 3,500 r.p.m. spindle speed. The great centrifugal force of the balloon of this yarn causes the travelers to tilt far over on the flange of the ring, as shown in Fig. 2-a, causing a notch or groove to wear on the top of the ring flange, Fig. 2-b, the only case of its kind the writer has ever seen. Rings were wearing out every few months. To alleviate this condition, a ring was designed with a rib in the center of the outside of the

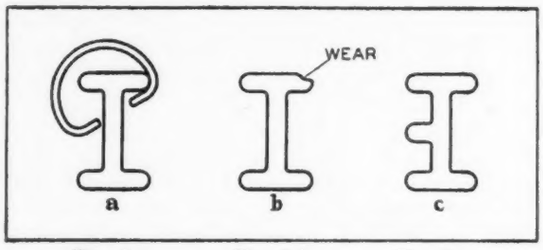

Fig. 2-a Fig. 2-b Fig. 2-c

web, Fig. 2-c, the rib protruding the same distance as the ring flange, to support the traveler before its running position caused it to bear on top of the flange.

In this particular installation it must be considered that the yarn is weak so that, without excessive end breakage, a heavy traveler cannot be used to decrease the centrifugal force of the balloon and increase the tension in the yarn between the traveler and the bobbin, which would bring the traveler to a more upright position. The conclusion is that with short stock and weak yarns the limits of large package spinning are quickly reached.

This raises the question as to what factors cancel out in changing to large package spinning. On frames adjacent to those spinning the 2s waste yarns were frames with 2½-inch rings spinning the same numbers but from good stock. These frames are narrow

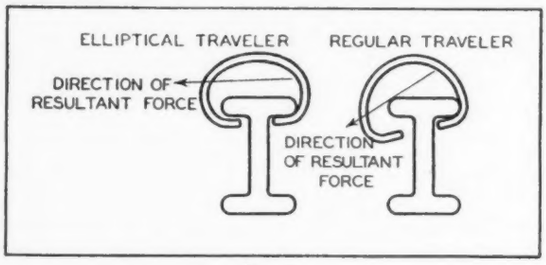

Fig. 3.

gauge, so that pulling down of the balloon is imperative, which means that heavy travelers have to be used and there is more tension in the yarn between the traveler and the bobbin. The result is that the traveler is more nearly balanced than is the case on the other frames, and ring and traveler life is most satisfactory. The dust, dirt and abrasives thrown off by waste yarn are, of course, not conducive to good ring and traveler performance and service, but this factor would account for only a small part of the difference shown on the two sets of frames. The problem of cancellation, then, is this: When a heavier traveler is put on a ring, the centrifugal force of the traveler is increased proportionately. Is this increase in centrifugal force cancelled by the increased tension in the yarn, so that the force with which the heavier traveler bears on the ring is no greater than when the lighter traveler was used? While this particular problem is presented with the same number of yarn being spun from weak stock and from strong stock, it is about the same as asking whether the weight of the traveler cancels out against the yarn number insofar as the force with which the traveler bears against the ring is concerned.

It is the writer's opinion that this cancellation does take place to a considerable extent. That the entire increase in weight, and consequent increase in centrifugal force, of the traveler is not cancelled by the increased tension in the yarn has been demonstrated in heavy twisting operations.(1) The writer regrets, more than any reader possibly could, that he is unable to give figures in support of this opinion, and must base it upon the few observations he has had the opportunity of making.

The revival and improvement of the elliptical traveler as an aid to large package spinning is an interesting development. In making this traveler elliptical rather than circular, which is the shape of the generally used traveler, its center of gravity has been lowered, Fig. 3, so that the centrifugal force and up-

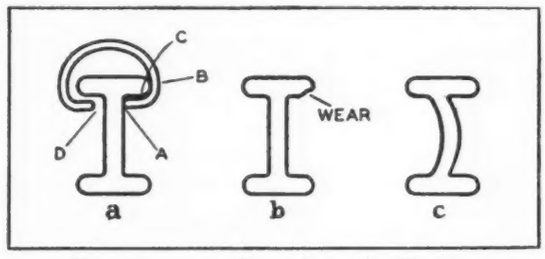

Fig. 4-a Fig. 4-b Fig. 4-c

ward and outward pulls of the yarn cause the traveler to assume a running position nearly parallel to the plane of the ring flange. The fact that heavier travelers of this type are required for the same tension in the yarn as was obtained from the use of regular circle travelers means that friction has been reduced and more satisfactory traveler and ring performance should result. The so-called gravity traveler is a step in the same direction of more nearly balancing the traveler on the ring flange, as well as toward making a traveler with harder points to withstand more severe operating conditions.

A discussion of this subject cannot be complete without consideration of how a traveler should fit on a ring flange and where the bearing points should be. Fig. 4-a shows the writer's idea of how a traveler should bear on a ring. The traveler point should be long enough to reach the inside of the ring web at *A*, thus distributing the bearing between the web and the edge or curve of the flange at *B*. The upward pull of the yarn makes the traveler bear on the under side of the inner flange at *C*, and a proper fitting traveler should bear across the whole under surface of this

(1)—See "A Study of the Twister Ring", by "Flange", March 1932 issue of COTTON, pages 39-40.

flange and not just on part of it. Rings have been worn rapidly, Fig. 4-b, on the under side of the inner flange by improperly fitting travelers with points or horns so short that the bearing was limited to one-half to three-quarters of this surface. The outside point of the traveler should not bear on the outside of the ring web at *D*. Bearing at this point results in an uneven motion of the traveler. The elliptical and gravity travelers are aids in preventing this outside bearing, and a ring with curved or concave web has been developed, Fig. 4-c, with the same end in view.

Some Noteworthy Large Package Installations.

A noteworthy large package spinning lay-out of 2,736 spindles follows: 2.60s to 10s are being spun on 3-inch No. 2 flange rings, from .75-hank slubber roving, gauge of frames 5-inch, traverse 9-inch, stock ⅞-inch to 1-inch cotton, 1⅛-inch barrel bobbins, 11 to 14 ounces of yarn per bobbin, twist multiple 4.50, spindle speed 7,816 r.p.m., traveler speed 6,138 feet per minute. The spindle speed given runs satisfactorily on numbers up to 8s, but when finer numbers than this are run on the 3-inch rings the speed has to be reduced. Travelers are giving satisfactory service for 100 hours, but the spinner thinks this can be increased to 150 hours. Traversing thread boards are used and the spindles are of the clutch type. Some trouble is experienced with spindle vibration or wabbling, and a very little of this on the part of such heavy spindles wears out bolsters. The spindles are oiled every 100 hours, or two weeks of single shift operation. Combination wind, i.e., warp cam with filling builder, is used. Spinners attend to eight sides of 114 spindles each. There are 30 to 35 ends down per thousand spindles per hour. What seems to be an unusual amount of lint for such good stock loads the travelers and is noticeable in flyings.

In the same mill is an installation of 4½-inch gauge frames with 2½-inch No. 2 flange rings, 9-inch traverse, spinning 10s to 16s from the same stock, but from finer single roving. A spindle speed of 8,774 r.p.m. is attained on these frames, which represents a traveler speed of 5,735 feet per minute. Attention is called to the fact that when 10s are run on the 3-inch ring a No. 9 traveler is used, while a No. 10, or one number heavier, traveler is used on the 2½-inch ring for this yarn number. Also, on 10s the front roll speed with the 2½-inch rings is 178 r.p.m. against 174 r.p.m. with the 3-inch rings.

If there be a "nigger in the woodpile" in this installation, the writer hasn't found him. However, the inner edge of the ring flanges appear to be breaking down after six to eight months' operation.

Another lay-out of three frames of 228 spindles each is this: 2.50s to 4.50s warp are being spun, on 3-inch No. 2 flange rings, 4.50 twist multiple, ⅞-inch to 1-inch cotton, 6,710 spindle speed, 5,260 feet per minute traveler speed, 1⅛-inch barrel bobbin, .47- and .63-hank roving, 11 ounces of yarn per bobbin. Travelers are lasting 35 to 40 hours. On 4.50s there are 20 ends down per thousand spindles per hour. It is interesting to note that before this large package installation was made, weavers were running 16 60-inch looms on 20-ounce osnaburgs, 129 picks per minute. They are now running 24 looms. An improved drafting system was installed on the large package frames.

It happened in this mill that 2.50s had to be spun immediately with no sheaves on hand to reduce the speed from that maintained on 4.50s. The 2.50s were run with a roll speed of 310 r.p.m., and such satisfactory results were obtained that 2.50s are always run at this speed in this plant. A spinner runs four sides under these conditions, and the superintendent is authority for the statement that ends are pieced up satisfactorily.

A lay-out of approximately 25,000 spindles produced the cost figures mentioned in the first paragraph in this article. This installation has been in operation several years. The lay-out follows: 7s to 13s yarns are being spun on 2½-inch and 3-inch rings, 5-inch gauge frames for the 3-inch rings, 4½-inch gauge for the 2½-inch rings, double roving, 1-inch cotton, 15/16-inch barrel bobbin. The spindle speed ranges from 6,900 on 7s on 3-inch rings to 8,300 on 13s on 2½-inch rings, traveler speed, approximately 5,400 feet per minute. The 7s on 3-inch rings require No. 11 travelers and on 2½-inch rings a number heavier. This mill uses a variable filling cam with strokes from 1¾-inch to 2-inch, getting a cross-wind in building the bobbin that prevents sloughing. It was found necessary to use a spindle oil with 85 viscosity, against the 63 viscosity oil formerly used, to prevent spindle vibration, which means an increase in horsepower consumption.

After several years' running there has been no trouble, within the writer's knowledge, with excessive ring wear, although travelers have to be changed every 110 hours. The 1-inch stock and double roving for these numbers make yarn strong enough that a well-balanced traveler condition should obtain.

Is this the Solution?

Numerous other lay-outs could be recorded, but the general character of all is the same as that of those given. So far the writer has not found what might be termed a large package installation of any considerable size for numbers finer than 14s. It seems that this number is about the limit of large package spinning at present, if production and quality are to be maintained and excessive end breakage avoided. Before much finer numbers can be spun practically on large rings and with long traverses, and before speeds and production can be further increased on the coarse numbers, it is the writer's opinion that at least two problems must be solved; namely, (1) a means of relieving some of the centrifugal force of the balloon of the yarn and of the traveler against the ring without the necessity of using extra long and strong stock to allow balancing of the traveler, or the development of rings and travelers that will give satisfactory service without that relief; and (2) protection for the yarn against air friction that causes "fuzziness" and against the evils that result from the yarn running exposed on the spindle too long.

Editor's Note.—Reprints of "The Spinning Ring" (October 1930 COTTON) and "A Study of the Twister Ring" (March 1932 COTTON) written by "Flange", the author of this article on large package spinning, will be furnished upon request.

Long Draft in Spinning and Its Use on Card Room Machinery

By James L. Truslow
Whitin Machine Works

WHETHER or not you now have long draft spinning, you will find much information of practical value in this discussion. Mr. Truslow gives first some actual examples of successful long draft lay-outs for coarse yarns, tire yarns, sheeting counts, print cloth numbers and fine combed yarns.

He presents an interesting discussion as to the comparative merits of single and double roving in spinning creels on long draft.

And he covers in a practical way his own extensive experiments up-to-date with regard to the application of long draft on roving frames

THERE are two quite distinct angles from which the subject of long draft spinning may be approached. Both furnish plenty of material — so much, in fact, that it is necessary to make a choice between them.

On the one hand, we may choose to discuss the more fundamental aspects of the subject. We can follow minutely the course of the cotton fibers through the drafting process and gain some ideas as to what actually happens to them. We can take up the theory of fiber control and learn how men have used this theory in working out drafting arrangements which are more effective than the conventional three-roll system. We can then go on to the comparison of the various long-drafting mechanisms and form our opinions of the merits and disadvantages of each one.

A few years ago I should have prepared this paper in accordance with the scheme which I have just outlined. Today, it would be rather a waste of time for progressive textile men. We are now all familiar with the principles involved in the design of the leading systems. Most of us have seen them operating on a large scale. Long draft spinning is no longer a novelty or a mystery. It is taken for granted as part of the equipment of the modern cotton mill. Most plants, which do not already have it will put it in as soon as the financial skies are brighter.

Today, we can take the other angle of approach. Instead of discussing the background of theory, we can deal with the actual accomplishments of the long draft spinning systems. We can describe what they are doing on millions of spindles in all the cotton-spinning states.

Coarse Yarns

In the early days there was a very strong and wide-spread belief that no long draft system would be practical in a mill spinning very coarse carded yarns. This belief was well founded on fact for the systems, as then built, were bad lint-catchers and required an almost prohibitive amount of cleaning when used on coarse work with short cotton. Long draft spinning still requires a certain amount of extra cleaning and, probably, always will require it. The leading systems have been so greatly improved, however, that the problem of cleaning is one which can be easily and cheaply solved by the establishment of a proper schedule.

As an example of what can now be done on coarse counts, I should like to give some figures from one of the very large installations. On 7.50s warp for osnaburgs, made from a mixture of strips and low cotton, the front roll speed is 197 r.p.m., the ring diameter is 2½ inches, and the traverse is 7½ inches. This yarn is being spun from .51-hank slubber roving with a draft of 14.7 and a girl runs ten sides of 120 spindles each.

Another very large mill spins a range of counts from 8s to 14s, all from .75-hank slubber roving. The drafts used figure from 10.7 to 18.7.

A third and very well-known mill, a pioneer in the use of long draft spinning, has been making its 13.50s warp for years from .84-hank slubber roving with a draft of 16.1. The ends down frequently count less than 30 per thousand spindles per hour.

Most of the coarse weaving yarns are made from short or mixed staples of cotton. These types of stock can be handled much better with controlled drafting than with ordinary three-roll drafting. The yarn produced is usually evener and stronger and the work frequently runs better, even though longer drafts are employed.

A few years ago, many coarse yarn mills would refuse to consider the installation of a long draft spinning system because the saving in cents per pound looked so small. Now, it is generally realized that, due to the very high production per spinning spindle, the saving per spindle per year on coarse yarns may be higher than with finer counts. It is the old story of a small profit on a large volume of business bringing in good returns.

Single Versus Double Roving

When we leave the very coarse counts and enter the range of numbers in the neighborhood of 20s, we begin to find a divergence of opinion as to what consitutes good long draft spinning practice. We find some mills using double and some, single roving, in

This discussion was prepared for and presented at the meeting of the Textile Division of the American Society of Mechanical Engineers in Greenville, S. C., on October 19th, and is used by permission of the Society.

the creels of the spinning frames. Usually, the mills which employ single roving have been able to entirely eliminate one card room process. Those who spin from double roving ordinarily retain all the processes but make a saving in cost through producing coarser hanks at each process. In this way, they are enabled to increase the production per roving spindle and to eliminate some of the machines used for each process.

The double roving advocate points out that, for a given standard of preparation, yarn spun from double roving is stronger and evener than similar yarn spun from single roving.

The single roving enthusiast replies that, with perfect roving, yarn spun from single roving will be as good as that made from double roving. He also points out that flyer frames are designed to make certain hanks and that if, for instance, a mill takes a roving frame suitable for producing 5.25-hank and starts it up on 3.00-hank, the doffing cost will be increased. On the other hand, if a mill takes an intermediate designed to make 1.65-hank and puts it to work making 2.20-hank, the balance of production is destroyed and somebody is going to be forced to buy additional intermediates. Otherwise, the necessary poundage of the finer hank simply cannot be put through the process.

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Single Versus Double Roving

Advocates of each of these methods in connection with long draft spinning are urged to read Mr. Truslow's comments on this subject and are invited then to express their opinions and give their experiences along this line for presentation (with no names being published, of course) in our "How Other Men Manage" department . . . . . .

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Most impartial observers feel that there is no quick answer to the question of whether to use single or double roving. It all depends on what the mill has to work with and what it wants to make.

Usually a single roving organization will give a considerably lower manufacturing cost, if it can be made to work satisfactorily. For this reason, no mill can afford to sit back and take it for granted that its yarn cannot be spun from single roving. It is well worth while to run a series of experiments, not perfunctorily, but with a real determination to make a go of the thing if possible.

The ordinary procedure is this. The mill makes, in its usual way, two sets of roving of suitable hanks. One set it spins into the desired yarn from single, the other from double roving. The result is scarcely in doubt. The yarn spun from the double roving is practically always superior. The mill then decides to stick to double roving unless it feels that the single roving yarn, though somewhat inferior, is good enough for the purpose.

It is no easy task to eliminate processes and doublings yet still make as good yarn as before. I do not know of a mill which has done it, that did not have a hard battle at the start. In cases, however, where skill and determination have been aided by proper equipment, remarkable successes have been scored. One of the largest bed sheet mills in the country, for example, is getting along very nicely with only twelve doublings in its entire organization.

The key to the problem is in the preparation. If a mill is going to cut corners on doublings, everything from the last process of roving back to the bale breakers must be just right. There are still mills which have little or no opening equipment, antiquated pickers, overloaded cards, drawing frames running with terrific front roll speeds, and roving machinery forty years old. Such mills should use all the doublings possible. There will be none too many to cover up the defects put in by the various inefficient processes.

I hope that what I have said will not be misunderstood as a plea for spinning all yarns from single roving. I simply want to make the point that every doubling in an organization costs real money. If money is to be spent, something should be received in return. If a mill is using more processes and doublings than its competitor, to make a given yarn, it ought to be getting a better yarn and better running work, or it ought to be able to use shorter cotton. If it is not getting these offsetting advantages, it is either not as well managed or not as well equipped as its competitor.

The sheeting mills, which spin counts around 20s, have been large buyers of long draft spinning. I should like to take, as examples, two very famous mills in this class. They are particularly interesting because one spins from single, and the other, from double roving. Both have equipment which is modern and management of the most progressive sort. Both use the same type of long draft spinning system.

Sheeting Counts

Mill *A* makes its warp yarn as follows: Slubber .47-hank, intermediate 1.20-hank. This roving is creeled single at the spinning frame and spun into 21s with a draft of 17.5.

Mill *B*, in making its warp, uses the following organization: Slubber .48-hank, intermediate, 1.00-hank, and roving frame, 3.00-hank. This roving is spun into 21s with a draft of 14.0. Double roving is used in the creel.

Both mills produce yarn of excellent quality and, in both cases, the work runs well on both spinning and the weaving. Mill *A* saves more in labor cost than Mill *B* but probably uses slightly longer cotton. Both are well satisfied with the advantages they have secured from installing the long draft spinning system. I suppose that, if we want to be very precise, we should describe Mill *A* as a *long* draft organization and Mill *B*, as a *better*-drafting organization.

Tire Yarns

A large proportion of the cotton mills operated by the tire companies are using long draft spinning, on yarns in the general range of 13s to 23s.

In the case of these yarns, breaking strength is all-important. Most of them are spun from double rov-

ing. The following is a typical organization: Slubber .50-hank, intermediate 1.00-hank, and roving frame, 3.00-hank. This is creeled double and spun into 23s with a draft of 15.3. The same mill makes its 20s from 2.28-hank double roving, with a draft of 17.6, and its 13s from 1.60-hank double with a draft of 16.3.

The tire cord mills, which have installed long draft spinning, all report improved breaking strength, in spite of the increased draft. This is rather convincing proof that the superior fiber control claimed for these systems is sometimes more than a theory.

Print Cloth Numbers

On yarns in the range of 30s to 40s, there are a great many thousands of spindles of long draft spinning in operation. Here, again, we find that some mills can get satisfactory results with single roving organizations. Others, after careful experiment, have found that their requirements are better met by the use of double roving.

One successful mill makes its 30s warp yarn with only two processes of roving. The slubber roving is .60-hank. The intermediates produce 1.60-hank. From this, as single roving, the yarn is spun with a draft of 18.7. Several other mills are running on practically the same organization.

Most mills on these numbers have, so far, preferred to use double roving in the creels of their frames. A typical conservative organization is as follows: Slubber, .45-hank, intermediate, 1.20-hank, roving frame, 3.60-hank. The roving is creeled double and spun into 30s with a draft of 16.7. Such an organization is an example of better-drafting rather than of long drafting. It should permit the use of somewhat shorter cotton if the mill is not interested in raising the present quality of its yarn. To give a specific instance, an eastern mill has found from two years of experimenting that it can make satisfactory yarns from 20s to 30s on ordinary spinning frames with double roving, a draft of 10.0, and full 1-inch cotton. On the long draft frames, it can make 20s to 30s of equal strength and quality, using double roving, a draft of 16, and 15/16-inch cotton.

Fine Combed Yarns

On fine yarns, a great variety of long draft organizations are in use. Some mills spin from single, and some from double roving. The length of draft varies with the staple of the cotton and with the quality requirements of the mill.

One mill makes its 60s warp yarn from 2.60-hank single roving with a draft of 23.1. The same mill makes its 98s filling from 5.00-hank single roving with a draft of 19.6. This filling goes from the spinning frame direct to the shuttle of the loom. Both of these counts are made from 1 3/16-inch cotton and the mill operates over 45,000 spindles of long draft spinning.

Another mill makes a lot of 46s warp from 4.00-hank double roving with a draft of 23.0, using 1 3/16-inch cotton. This mill has been particularly impressed by the smoothness and freedom from hairiness of the long draft yarn, as compared with that made on ordinary spinning with light wood top middle rolls and a draft of about 16.

Still another mill, with a large installation, makes its 56s warp from 5.50-hank double roving with a draft of 20.4. This yarn is as strong as that formerly made from 9.00-hank double roving with a draft of 12.4. The same mill has spun a lot of 96s and 120s on the long draft system, with good results.

With really long staple, drafts in excess of 30 are being run on a small scale in American mills. In Europe, such drafts are fairly common. The writer visited one mill in Czechoslovakia which was making 60s from 2.00-hank single roving.

Long Draft in the Card Room

Now that the long draft systems for the spinning frame have become established and respectable members of the textile machinery family, the question arises as to why something of the same sort cannot be worked out for the roving processes. During the last year, we have been working hard at this problem and I should like to talk a little bit about the difficulties we have had to overcome and the progress we think we have made. Please understand that we are now leaving the settled regions of machinery practice for pioneer country about which we do not, as yet, claim to know very much.

In discussing long draft in the card room, I shall deal with a single system, the Whitin-Casablancas, as that is the only one with which I have had personal experience. I do know, however, that my friend Mr. Blake has been working on the same problems and I feel sure that he could also report very interesting results.

In the first place, let us see what we stand to gain if we succeed in applying the long draft systems to roving machinery. Perhaps it will be best to take concrete examples.

Suppose that a mill wants to make 28s warp yarn from 1-inch cotton in the cheapest possible way. There is no need, in this case, to make a beautiful prize yarn but it must break reasonably high and run well in the looms. First, we shall take the mill's 10x5 intermediates and convert them into slubbers equipped with a long draft system. On these machines will be made 1.50-hank roving from 55-grain drawing frame sliver with a draft of 9.9. The roving will then be creeled single at the spinning frame and spun into 28s with a draft of 18.7, using a long draft system on the frame. A mill, which I personally believe to be one of the most progressive in the world, is now running a section of spinning frame on precisely the organization which I have described.

At Mill *A*, mentioned earlier in this paper, a section of frames is running on 21s warp, made on long draft spinning from 1.20-hank single roving. This roving is made on a long draft slubber, an ex-intermediate, from 60-grain drawing frame sliver with a draft of 8.64.

For mills which prefer to spin from double roving, organizations can be worked out which use the long draft roving frame to good advantage.

The desire of most practical spinners to retain double roving in the creels of their frames, is thoroughly

justified. In a mill organization, the doublings represent a series of successive inspections of the roving, correcting defects which may have been put in by the preceding machines. It is true that defects may be introduced by the spinning frame as well as by the flyer frames but, in practice, this does not happen so frequently. Accordingly, the doubling in the creel of the spinning frame is particularly valuable. It is the only one which cannot be nullified by a subsequent flyer frame process. If doublings are to be eliminated, it is better to take them out farther back in the organization, rather than at the spininng frame. This statement has been checked up by experiments made under mill conditions and seems to work out in practice.

What Do You Think

of making 28s warp yarn, from 1-inch cotton, taking 55-grain drawing sliver, and making 1.50-hank roving on a 10x5 machine, with a draft of 9.9; creeling this single at the spinning, and making 28s from it with a draft of 18.7?

This has been done practically by a progressive mill, and indicates the possibilities of long draft on roving, which Mr. Truslow covers interestingly in this discussion . . . .

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The following organization is based on the theory of doublings which we have just considered: Slubber, .70-hank, long draft roving frame, 3.20-hank. This would involve a draft of 9.15 at the roving frame. The 3.20-hank roving would be put up double in the creel of the long draft spinning frame and pulled out into 30s, for instance, with a draft of 18.75. This is frankly an imaginary organization and is not in operation, so far as I know. It was suggested independently by two prominent mill men, as possessing several advantages. Note that, while the doubling at the spinning frame is preserved, all of the intermediates are eliminated as well as a large proportion of the roving frames.

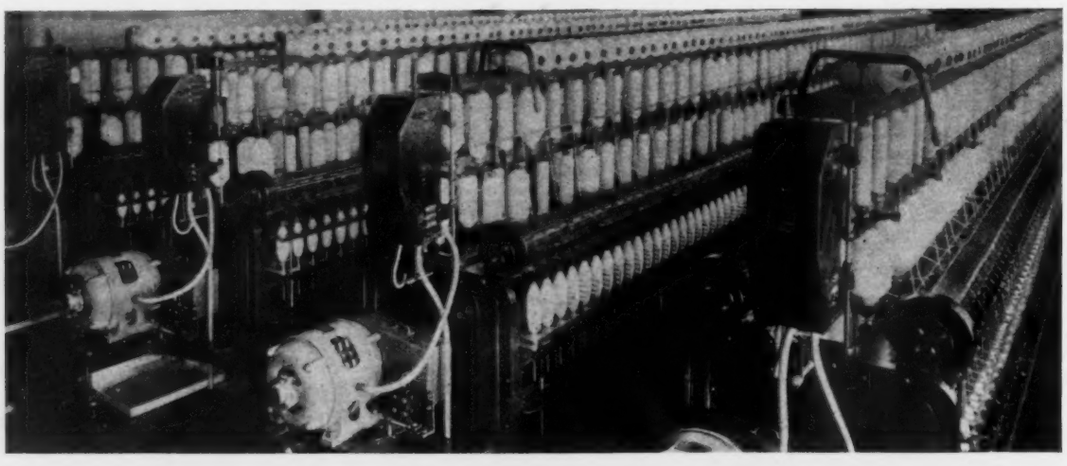
In trying to work out a long draft system for roving, our first attempts were along the lines of transplanting the Whitin-Casablancas system from the spinning frame, without changing its construction. We quickly discovered that a number of factors are very troublesome in the card room, which do not bother us at the spinning frame.

In the first place, the bulk of cotton passing through the drafting rolls, is much greater, particularly at the slubber. This tended to lift our top middle rolls and leather bands out of contact with the bottom rolls, by which they were driven. When a sudden stress was applied, as when the frame was started, some of the top rolls would slip, causing ends of roving to break. We tried to overcome this trouble by using very heavy weighting. This helped the slippage but added to the power required in driving the frame and reduced the life of the bottom leather bands to a matter of weeks.

The credit for overcoming this difficulty belongs to Mr. Casablancas. The thought occurred to him of combining with the apron drafting system an idea which is far from new—positive gear drive between the top and bottom rolls. All we had to do was to work out a cover which would make these gears lint-proof. Also, as the top roll had now become a driver, we knurled it to improve its frictional contact with the inside of the top leather band. These improvements have worked out very well in practice. We can use light weighting without being troubled by slippage and we can draft out sliver piecings which are made with ordinary care.

Another thing which bothered us was the card room lint. This is bad enough under standard conditions and tends to increase as the draft is lengthened. We found that it was difficult to keep the top clearers plucked. The front top rolls would pick up loose fibers from the selvages of the drafted ribbon of roving and carry them up to the clearer. Long tufts of waste would form just behind the front top rolls and, if neglected, would go through the rolls, breaking down ends. We discovered that cork-covered rolls would not pick up fibers to anything like the same extent. Using these, in connection with a special new type of clearer, we were able to greatly improve these conditions. We also designed a cradle which guides very efficiently the wide leather bands used on double-boss roving frames and which is much more nearly lint-proof.

At the present time, we feel that we have at least reached the point where we have a workable system. No doubt, many now unforeseen difficulties will arise and further improvements will be made. However, it really begins to look as though long draft in the card room, used in connection with long draft spinning, may help the mills further to reduce costs of production.



Practical Discussion on Safety, Carding and Spinning Held at Henderson

Especially Reported for COTTON

PREVENTING accidents; the best means of increasing card production; using twelve pitch drawing gears; long draft on spinning; large package spinning—these and other timely mill problems were discussed at the Henderson meeting, fully covered in this special report. Readers are invited to continue any of these discussions by submitting further information on the subjects covered for publication in the "How Other Men Manage" department . . . . .

A MEETING of the Eastern North Carolina Division of the Southern Textile Association was held in Henderson, N. C., on Friday, October 7th. The meeting was in charge of E. M. Holt, assistant manager of Erwin Cotton Mills Nos. 1, 4 and 6. M. R. Vick, overseer of carding, Rosemary Manufacturing Company, led the carding discussion, and D. F. Lanier, superintendent, Oxford Cotton Mills, led the spinning discussion.

The meeting was called to order by Mr. Holt, and after the preliminaries, Mr. Holt introduced Edwin B. Landray of the Liberty Mutual Insurance Company who made a very splendid talk on accident preventions. Mr. Landray stressed the point that no accident prevention program could succeed at any mill unless it had the wholehearted co-operation from the general manager, superintendent and overseers. He brought out very clearly the benefits to be derived from a successful program which included reduction in insurance rates, saving of various waste of materials, machinery, loss of production, loss of income to the employees, and of course the sufferings involved to the injured parties. Mr. Landray emphasized the point that overseers are instructors, especially when working out the program of Safety First. He advised to take nothing for granted as this is the cardinal principle of Safety First. The overseer must not take for granted that there are no unnecessary causes for accidents in his department; neither must he take for granted that all of his help fully understand the danger of their work. He pointed out that this is especially true in the case of new employees.

Discussion of Reducing Accidents

Another point stressed by Mr. Landray is that the number of accidents occurring in any department should be taken as a good index as to the efficiency of that particular overseer. It was pointed out that the overseer should act as a model in training his help in Safety First practices by being especially careful at all times himself; that in all probability the help will tend to imitate his methods.

The importance of having regular meetings of all overseers and the superintendent to discuss accident preventions was brought out very forcibly. At the time these meetings are held it was recommended that all accidents occurring since the last meeting be discussed, and it was recommended in some instances that the injured party be present so that his side of the picture could be brought out; this of course showing interest in his welfare gets him interested also.

The danger of neglecting minor accidents was also mentioned because small ones some times develop into very serious ones, and it is wise to consider every accident as a potential liability case. One very interesting point raised was that no mill could afford to operate without suitable records of accidents being kept any more than they could attempt to manufacture without keeping production records. Mr. Landray mentioned the fact that in most mills there were certain employees who have more accidents than the average, and it was the job of the Safety First committee to determine just why these certain employees are more unfortunate than the others and try to correct, if possible, the condition. Some of the specific recommendations were periodic inspections of plants, bulletin displays in prominent points about the mills; these bulletins being merely advertising needed the cooperation of an effective sales force, the sales force of course being the superintendents and overseers.

Discussion of Safety Methods.

Mr. Landray pointed out the fact that in North Carolina since July 1, 1929, one mill had reduced its rate six per cent; another nineteen per cent; and a third twenty per cent. He also stated that there were two plants in the state who have not had a single loss-time accident during the past twelve months; both of these of course have well organized Safety First programs. After Mr. Landray completed his talk the meeting was thrown open for a general discussion of accident preventions.

T. W. Mullen, superintendent, Rosemary Manufacturing Company, agreed fully with Mr. Landray's suggestions, and testified that at Rosemary they had improved their records tremendously by the use of an active Safety First organization. Mr. Mullen brought out the point that they had had only one accident during the past nine months from defective machinery; all the rest appear to have been from carelessness of operatives which was in line with Mr. Landray's point that the chief feature in this work is that of educating the employees. Mr. Mullen recommended that the mill executives attend the various Safety First meetings, stating that he and some of his men had attended one

some months ago and had received a great deal of inspiration therefrom.

One member brought out the point that the vast majority of their accidents was caused by water on the floor, some times from scrubbing and some times from wetting down of humidifiers, leaks, etc.

Another member stated that they overcame this trouble by having in each department sand boxes, sand being sprinkled where a dangerous spot was found pending the stopping of the leak.

Other recommendations were that in the case of floor scrubbing warning signs should be used. Another suggested that if small spaces were wet at a time and properly mopped behind the scrubber this danger could be held to a minimum.

C. A. Davis, superintendent, Pilot Mills, Raleigh, reported that he did all scrubbing Saturday afternoons or other times when the plant was not in operation. In this way he uses a scrubbing team in each department.

Another frequent cause of accidents brought out is the carrying of open knives in pockets by employees. The best suggestion offered to take care of this danger was made by one superintendent who stated that at his mill leather shields were made to cover the knife blade.

How to Increase Card Production.

Immediately after the discussion on Safety First, M. R. Vick, overseer of carding, Rosemary Manufacturing Company, took charge of the carding discussion. The first question on the carding program was as follows:

A mill spinning 20's yarn from middling 15/16 to 1-inch cotton desires to increase the production through the cards twenty per cent. The mill at present running a 56-grain card sliver; doffer making 11 r.p.m. with a draft of 100. Chairman Vick recommended that the mill in question cut the draft so as to get a 45-grain sliver instead of a 56-grain; increase doffer speed to 16½ r.p.m., leaving the lap the same, and leave the finisher drawing sliver the same weight as in the beginning, thereby reducing the draft on the drawing in the same proportion that the weight of the card sliver was reduced. There was a general discussion of this problem and many suggestions made, one of which was that the speed of the cylinders be increased from the normal speed of 165 r.p.m. to 180, this giving a ten per cent increase in production, the other ten to be obtained by increasing the weight of the lap five per cent, and increasing the doffer speed five per cent; this giving the total twenty per cent required.

Chairman Vick brought out the point that in increasing the speed of the cylinders beyond the normal of 165 r.p.m., in the case of old cards where the cylinders were fastened on the journal with set screws, he had had trouble with the cylinders slipping even though he only speeded to 175 r.p.m.

David Clark, of Charlotte, warned against recommending an increase of speed on the cylinders, bringing out the point that at a recent meeting a man reported that he had made a big improvement in the running of his work by *decreasing* the speed from 165 to 140 r.p.m.

Mr. Thomas, of the Whitin Machine Works, made the point that balanced weights are used inside of card cylinders and that machine builders have them balanced for a speed of 165 r.p.m., and that when this speed is exceeded undue vibration is likely to be encountered. Several of the members present seemed to feel that it was practical to increase the cylinder speed ten per cent, provided the cards were comparatively new, and provided further they were on the ground floor and this floor made of concrete. It was brought out also that when running card cylinders too fast this was especially dangerous where there was old or loose clothing.

Other suggestions made for increasing the production of the cards twenty per cent included one which recommended heavying the lap ten per cent and speeding the doffer ten per cent. Still another suggestion was that it would be better, since the mill was interested in retaining the quality of their yarns as nearly as possible, instead of changing any of the speed they simply operate the cards twenty per cent overtime.

E. M. HOLT, of the Erwin Cotton Mills Co., West Durham, N. C., who is chairman of the Eastern North Carolina Division . .

Numerous points in regard to speeds and drafts in the card room were naturally brought up in this discussion. The old question of whether or not it is better to run a medium or long draft on cards had advocates of both systems. David Clark reminded the Association that the English mills draft very much longer as a rule than do the American, even going as far as a draft of 150.

One member brought out the point that if Chairman Vick's recommendations were adopted, that a change from a 56-grain sliver to 45 would necessitate changing trumpets on both the cards and drawing. Mr. Vick's suggestion of shortening the draft on the drawing also produced considerable discussion as to the benefits to be derived by such a change. One or two members took the position that so long as you did not draft more than six, or even seven, on drawing there would be no appreciable benefits derived from shortening the drafts.

Carl R. Harris, of the Erwin Cotton Mills, very strongly advocated an extremely low draft on drawing. He stated that he had reduced drawing drafts to slightly more than 4 on 30s to 40s, and that by so doing he had made a big improvement in the running of his work on subsequent processes. As usual, there was no decision reached and very few, if any, new points brought out in regard to the benefits to be derived from long drafts on the cards.

The next question Chairman Vick brought up was what advantages, if any, can be gained from changing from eight to twelve pitch on the drawing gears used in the tension drive.

Changing Pitch of Gears on Drawing.

J. W. Thompson, of the Oxford Cotton Mills, reported that he had made such a change and found that he had made a big improvement; stating that he could set the knock-off motions more accurately and that they operated much better. He pointed out one advantage to be gained is that with a twelve pitch gear when a change of one tooth in the tension is made the change is not so great, and therefore he could keep a more uniform tension at all times. He stated that when running the eight pitch gears some times his tension would be too slack; yet when he changed one tooth it would be too tight, and consequently stretched the sliver. Mr. Thompson also stated that he had taken out his calender rolls and turned them down 1/16-inch so that he could get them all alike and uniform; and that this had also improved the evenness of the tension on his drawing frame. He mentioned that after turning down the rolls it was necessary to change the gears slightly to make up the difference in diameter of the roll. He said that it was also important to have these twelve pitch gears set up in mesh properly; be sure that they were set deep enough, otherwise they would load up and there would also be too much lost motion.

Left to Right, M. R. VICK and D. F. LANIER, who led the carding and spinning discussions, respectively . .

One member asked if there had been any more gear breakage with using the twelve pitch instead of the eight pitch, and several members who had made the change advised that there had not been any trouble of this sort.

Mr. Thompson also stated that after changing his drawing frames, as mentioned above, variation had been reduced and breaking strength improved about fifteen per cent.

C. S. Tatum, of the Pilot Mills, Raleigh, recommended the use of twelve pitch spiral gears as being even better than changing to the twelve pitch straight tooth gear. Another member suggested that this would increase the cost considerably, but Mr. Thomas, of the Whitin Machine Works, advised that there was no difference in the cost of the spiral and the straight tooth gears.

Another member stated that instead of turning down his calender rolls when they were found to be worn, he took them out and shrank collars on the roll at the point where the sliver comes through, and then turned these collars down to the standard diameter. He made the point that this did away with the necessity of changing gears; which change was necessary in the case mentioned by Mr. Thompson. Quite a few of the members reported that they had recently made the change from eight to twelve pitch gears, and in every instance they were well pleased with the change. At this point the meeting adjourned for lunch.

Immediately after lunch the Association re-assembled and General Chairman Holt turned the meeting over to D. F. Lanier, superintendent of the Oxford Cotton Mills, Oxford, N. C., who led the discussion on spinning.

Long Draft on Spinning.

The first question brought up for discussion was long draft as applied to spinning. Chairman Lanier immediately called on Professor Hilton who has charge of carding and spinning in the textile department of North Carolina State College in Raleigh, and asked that he give a general outline of the various types of long draft spinning. This topic was assigned to Professor Hilton because of the fact that he has in his department several types of long draft spinning. He gave a brief description of the double apron type, single apron, the Belger roll, the light wooden middle roll and the four-roll system. Obviously he did not attempt to advise the Association which type to purchase; simply describing the systems. One point Mr. Hilton made was that when a mill purchases a certain length staple, say one inch, only twenty-six per cent of the entire staples in the bale are of the length specified. This fact has brought about the necessity of improved systems of drafting in mills desiring to draft beyond the old standard. Mr. Hilton mentioned the fact that in using the long draft system it was customary to have a considerable increase in the so-called "break draft" between the back and middle rolls; it being customary to increase from the standard 1.09 to approximately 1.30; in other words, a change of about two teeth.

Chairman Lanier next called on Mr. Thomas, of the Whitin Machine Works, to discuss long draft spinning in general. He stated in the beginning that he wanted it distinctly understood that his remarks had no particular reference to his, or any other, system of long draft spinning. He stated that there were two uses of the system—either to make a better yarn or to save labor, or perhaps both. He mentioned one specific case where a mill was spinning 20s yarns with three processes of roving frames; after installing a long draft system they cut out entirely one process of roving frames, saving the labor, power, supplies, etc., necessary to their operation and still maintained a five pound better breaking strength in their yarns.

Mr. Thomas stated that the long draft systems could be in some cases applied to old spinning frames, but in each particular instance he recommended that a mill have a survey made by competent engineers, or by a representative from the machinery builders, and determine whether or not it is practical to apply the long draft system to old frames. He mentioned that the specifications of some frames were such that the addition of long draft spinning would not be of much benefit to the mill.

Mr. Thomas told of another particular instance where a mill had adopted long draft spinning and took

the slubber roving direct to the spinning. He continued to emphasize that this was a problem that depended entirely on conditions in each individual mill; kind of cotton being used, and the condition of the equipment, etc. He stated that there were more cases where it was practical to install the long draft on old filling frames than on old warp frames. None of the mills represented had made any sizable installations of long draft spinning; however, a few had installed trial frames and the results of several experiments were reported.

One member stated that he had run several experiments with long draft spinning, in the first of which he used .62-hank slubber roving, single creel, making 16s yarn with a draft of 27.53, front roll speed 120 r.p.m., diameter 2¼ inches, yarn broke 92 and ran good. He reported a second experiment making 24s soft twist yarns out of 1.64-hank roving, double creel, draft 29, front roll speed 140 r.p.m., diameter ring 2¼ inches. This test did not run so good. He thought he had his front roll speed too high. A third experiment he made 20s yarns using 1.60-hank roving, double creel, with a draft of 25, front roll speed 135 r.p.m., yarn broke from 80 to 90. Another experiment was soft twist 16s made out of double 1.60-hank roving, draft 20, front roll speed 125 r.p.m.

C. S. Tatum.

Mr. Rose of the Harriet Mills, Henderson, N. C., reported on an experiment he ran on long draft spinning but he did not give any yarn numbers or drafts, but stated that the work ran well and did not appear to give trouble in cleaning.

Several of the members at this point stated that in systems using the leather aprons the cleaning was considerably more difficult. The point was made that on account of the fact with long draft, roving runs longer in the creel, which fact gives the spinners more time for cleaning.

A question was asked as to how long the leather aprons would last. One member reported that over a period of five years there had been only about one per cent replacement. Another member reported visiting a mill using long draft and found that they had had a much larger percentage of replacements over a period of two years; he did not give figures, however.

The last question asked was how long does it require to replace one of the leather aprons. This question was answered by a member stating that just a few moments were required, and it was not necessary to stop the frame, the section man doing the work. On single boss spinning two spindles are stopped for each apron broken.

The next question was—does it require more skilled labor or longer to teach new operatives when using long draft spinning The consensus of opinion was that it does require a little longer for the spinners to get acquainted with this kind of equipment and that more skill is required in piecing up the roving, as if a poor piecing is made the roving will not come through.

L. B. Crouch, overseer of spinning, Rosemary Manufacturing Company, stated that he had recently visited a mill using long draft spinning, and found that there was cloth laid out by inspectors thinking that there were mispicks in it; it was discovered, however, on close examination, that the trouble was uneven yarn instead of mispicks. The point was made in this particular mill, one process of roving had been cut out when the long draft spinning was installed.

Mr. Byrd, West Durham Mills, advised that he had made some tests on both apron and four-roll type equipment and drafted the same on both. He stated that he had very much more trouble cleaning the apron type, and liked the four-roll equipment much better than the other type.

Large Package Spinning.

The point was raised by W. V. Byers, of Erwin Cotton Mills, whether or not in installing new spinning it was desirable to install the largest possible rings with the longest possible traverse so as to reduce cost in doffing and spooling, or winding as the case might be.

C. A. Davis.

One member brought out the point that it depended entirely on the type of spooling being used, as in the case of some of the automatic spoolers a nine-inch bobbin is the maximum that can be used. Mr. Byers admitted that in increasing the size of his package it would be necessary to run lower front roll speeds and consequently be necessary to install more spindles.

C. S. Tatum, of the Pilot Mills, said, "In some cases the lack of floor space would prohibit the increasing the number of spindles and that the increased investment would have to be weighed against the possible savings made by the extremely large package."

One member asked what is a good speed for 12½s filling with a 1⅜-inch ring, 2¾-inch gauge. There was only one answer to this question, one member reporting that he was running 13s on a 1¾-inch ring, 178 r.p.m.

There was considerable discussion at this point as to the advisability of increasing ring diameter on spinning frames and at the same time increasing diameters of bobbins. There seemed to be a difference of opinion on this point; some members not seeming to understand what would be gained if the diameter of the rings were increased and the bobbins increased at the same time. It was explained, however, that the quantity of yarn put on the bobbin increased rapidly as the diameter of the package increased. In other words, there is not nearly as much yarn in the first ⅛-inch layer as there is in the last ⅛-inch layer of the package.

The last question taken up was what is the maximum practical draft for 14s to 20s made from ⅞-inch to 1-inch Middling cotton, single creel. Several members reported drafts that they were using but in most

(Continued on page 41.)

The Rehabilitation of Industry

Textile manufacturers have an especially important interest and responsibility in this work . . . .

THE textile industry is particularly interested in and concerned with the matter of obsolescence and replacement of existing machinery, and the installation of modern methods. Leaders in the industry during the past few years have emphasized this point in connection with the programs of their individual plants; and intelligent modernization has been offered as a major means of resuscitating the industry, physically and economically.

Norman E. Elsas, in an article in the October issue of COTTON, discussing the importance of modernization, "Would it not be better for mills that now have cash, or that have the credit to borrow at the low interest rates now available, to invest money in equipment which will enable them to compete in the coming years, and at prices that will show a considerable spread between the values at which they are now available and those at which they will be in the future when some inflation has taken place?"

This industry, accordingly, is greatly affected by and interested in the plans of the Committee on Industrial Rehabilitation appointed recently by President Hoover, on the premise that "one solution to the problem of employment and business recovery lies in the direction of industrial modernization", to "devise and put into action a national program to accelerate replacement of obsolete machinery, equipment and plant facilities throughout industry. A. W. Robertson, chairman of the board, Westinghouse Electric & Mfg. Co., is chairman of the committee, and in a statement of the program of the committee points out the following striking facts:

In the industries devoted to the making of machinery and equipment alone, approximately 1,620,000 workers have been deprived of employment since 1929. Their loss in income totals more than three billions of dollars annually. It has been estimated that loss of employment for one worker in the "capital goods" industries results in loss of employment for three workers engaged in the marketing of consumer products—food, clothing, radio, automobiles —or in furnishing materials to the equipment and machine builder.

The acuteness of this situation is further intensified by the fact that, along with the prostrating sag in employment, expenditures for equipment, machinery and plant facilities have dropped from the average normal annual outlay of $5,000,000,000 to a yearly total of $1,260,000,000. This falling off constitutes one of the major factors contributing to continuance of the paralysis which besets American industry at the present time.

The progress of industrial maintenance has been interrupted to such a degree that today more than fifty per cent of the machinery, equipment and plant facilities in American factories is obsolete. The fact that in these last three years there has been more rapid improvement in equipment design than in any period in our industrial history makes the condition that much more urgent.

The primary objective of the committee is to set in motion a succession of orders for improved equipment and machinery which will extend, in their effect on employment and spending, from the factory back to the farms, forests and mines. Every order starts a wave of work required in the production, processing, transportation, installation and sales of materials and services that is felt throughout all branches of business.

The Self-Interest of the Manufacturer.

In its national program the committee is stressing the advantage to the manufacturer in urging him to proceed at once with the modernization of his plant. Now is the best time for this step for many reasons. In the first place, financial and credit conditions are clearly and positively better. Secondly, the most improved equipment developed in the last three years can be purchased at abnormally low prices. Again, many corporations have liquid funds drawing low interest that would be better invested in more profitable equipment and plant facilities. Better production efficiencies, effected through installation of modern equipment, will improve a company's ability to meet competition and increase its earning power. Changes can be made most easily now, when plants are not busy. Also, there is the important fact that obsolescence means not waste alone but loss of opportunity for better profits.

If industry will proceed at once for reasons of sound self-interest to put its house in order and to remedy through modernization the run-down condition of its productive equipment, employment will be created for hundreds of thousands of workers in the "capital goods" industries. In addition, it will bring back on pay-roll hundreds of thousands of other workers in industries which furnish the parts, raw materials and services bought by these machinery and equipment manufacturers. This will release millions of dollars in wages spent for individual and family purchases affecting business everywhere.

The forceful statement from which the foregoing paragraphs were taken applies particularly to the textile industry.

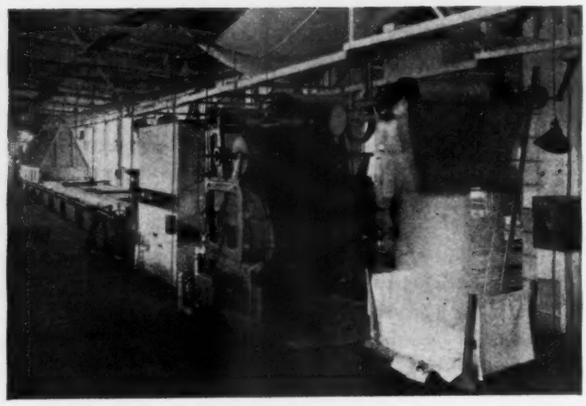
The committee has organized according to the twelve Federal Reserve districts. For the Sixth District, composed of Georgia, Florida, Alabama, Mississippi, and parts of Louisiana and Tennessee, Theodore Swann, of the Swann Chemical Co., Birmingham, is chairman, and L. W. Robert, Jr., of Robert & Co., Engineers, Atlanta, Ga., is vice chairman. Each one of the states in the district has a chairman, and for Georgia, T. K. Glenn, chairman of the board, First National Bank, Atlanta, is chairman, and Thomas Fuller, southeastern district manager, Westinghouse Electric & Mfg. Co., Atlanta, is vice chairman. Zone chairmen, not named at this writing, are to be appointed and the complete organization effected.

Textile manufacturers are strongly urged to lend their interest to the project, and to give their active support toward the accomplishment of the aims of the committee.

Shrinking Cotton Goods in General—

SANFORIZING IN PARTICULAR

By Richard W. Arrington
Vice Pres., Union Bleachery



Courtesy, Textile Finishing Machinery Co.

A range for Sanforizing, which, according to the author, "will eventually become a standard finishing operation, such as mercerization is today" . . .

A NON-TECHNICAL *description of shrinking cotton goods, and particularly of the Sanforizing process, was given by Mr. Arrington as a feature of the semi-annual meeting of the Southern Textile Association, held in Greenville, S. C., on Friday, October 21st, in conjunction with the Southern Textile Exposition. An abstract of his remarks is presented here as of interest especially to operating executives in weaving mills whose goods go subsequently to finishing plants where they are treated by this process.—The Editor.*

THE shrinkage of cotton piece goods is one of the most serious obstacles in the way of its increasing popularity with the public. The present day cotton fabrics have developed style, beauty, wearing quality and price, and if there can be added to those advantages the further advantages of complete shrinkage, then this additional feature certainly should make for increased sale.

In my opinion, not since the adoption of fast colors on cotton has there been added a greater advantage than that of complete shrinkage to all practical purposes. The shrinking of cotton piece goods is now going through the same stages of development and of education experienced by fast colors a few years ago. There was quite a period of time when a fast color label on a garment, unfortunately, did not mean a great deal, due possibly to improper application of color or the fact that many unscrupulous people put out fabrics which were not dyed with the fastest kind of colors, but labelled them as fast. Too many times they would figure that they would put out a garment with a fast color label, even though the color were not fast, appreciating at the time public psychology and knowing that nine people out of ten, after the garment did fade, would simply shrug their shoulders and say, "I thought so", and let it go at that. When the tenth one did take the trouble to return the garment of course it was made good, but the producer was considerably ahead of the game. I am pleased to advise that that practice has now gone very largely into the discard, and, as a general rule, today when a garment is labelled "Fast Color", whether it be a print, a solid dyeing or a colored yarn fabric, usually it means that the color is fast.

Shrinking today is going through very much the same process of development. Much has been learned about the shrinking of cotton goods but vastly more is still to be learned. So-called shrinking has been practiced on cotton goods for a number of years, but it has never until recently been taken very seriously. It has been more or less a half-hearted, half-way sort of job and did not represent complete shrinkage as we know it today.

We ourselves have had a watershrinking process which we have used for a number of years, but frankly it is, like a great many others, only a half-way job, and when I say half-way, I mean almost literally that, because we have found that an average heavyweight bleached fabric, such as duck, a heavy twill or similar fabric, in a regular unshrunk finish will show a shrinkage to a laundry test of about eight per cent. The same fabric when subjected to our watershrinking process will show a shrinkage to a laundry test of about four percent.

That kind of process of course is considerably better than an unshrunk job. It has the advantage of being cheap and it enables the converter to sell his goods as being shrunk, and enables the garment manufacturer to put a label in the garment reading "Supershrunk", "Guaranteed Shrunk", "Coldwater Shrunk", or some other such highsounding expression. It does not, though, make toward consumer satisfaction, and it is that kind of shrinking which I frankly admit we, too, have been a party to, that makes you raise your eyebrows or shrug your shoulders when I talk about complete shrinking to all practical purposes. It is not my intention to cast any reflection on any particular process because certainly I have no particular one in mind. The fact remains, nevertheless, that much has been done to abuse the public's mind from the standpoint of shrinkage and much remains to be

done to disabuse that same mind and to get over to the public in a constructive way the fact that complete shrinkage to all practical purposes is an accomplished fact.

You are probably wondering, "What is this process that is so much superior to other processes previously in use?" My answer to that is Sanforizing. which gets its name from the first name of the man who invented it, Sanford L. Cluett.

What Sanforizing Is

Briefly, the sanforizing machine is composed of a 90-foot tenter frame which is placed in front of a Palmer machine with various attachments such as steam jets, atomizers, electric shoes and other things, the details of which would take entirely too long to even try to describe it. The action of the machine is almost entirely mechanical, and what little moisture is used is not for the purpose of shrinking the goods but purely as a means to an end, namely, to make the fabric pliable so that the individual threads can be mechanically moved.

As the process is mechanical and any degree of shrinkage can be secured, it naturally becomes necessary first to know how much shrinkage is in any particular fabric so as to know how much to remove. The first thing done, therefore, when a lot of goods is ready for sanforizing, is to take out two or three samples from the lot at random, mark them with indelible ink and then subject them to a regular laundry washing in a small machine used for that purpose. After washing the samples are carefully squeezed without any wringing action, as that would distort the threads, spread out on a screen and allowed to dry. After drying the sample is lightly atomized and pressed with an electric iron by raising and lowering the iron and not rubbing. The sample is then again measured and by comparison with the original measurements it is determined exactly how much shrinkage it is necessary to remove in both the warp and filling.

"Overshrinking" a Fabric

The goods are then run and samples taken at intervals throughout the lot coming off the machine and subjected to the same laundry test for the purpose of determining whether the predetermined shrinkage has actually been taken out. Usually we find that it has. If on an occasional lot it is found to still contain shrinkage above the allowable tolerance, the goods are put over the machine again and are not checked out until the wash test has been made and the particular lot is found to pass muster. Naturally tolerances are necessary in any mechanical process and the tolerance laid down by Cluett, Peabody & Company is a tolerance of three-quarters of one per cent either overshrunk or undershrunk.

It might seem strange to think of a fabric being overshrunk, but it is easily possible to overshrink a fabric and have it get longer when washed. We have to watch that feature as closely as we do having it undershrunk. Slight tolerances are also necessary not only because the process is mechanical, but simply because no two pieces of cloth are identical. They might have been woven with different degrees of tension or received different degrees of tension in our bleaching and finishing processes. This will naturally make the characteristics of any two pieces of cloth slightly different. If, therefore, we have made our wash test on certain pieces, it does not follow that every other single piece in that lot is going to be identical with the pieces which we have tested. A great many pieces are finished to exactly zero in both warp and filling, but the tolerance mentioned, as you can readily see, is necessary. This tolerance represents only ¼-inch in 36 inches, and I think you will agree that a variation as small as that would never be noticed by the user of any garment.

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SOME of the practical experiences of a leading finisher in connection with shrinking cotton goods by the sanforizing process are given in this discussion by Mr. Arrington. His comments will interest weaving goods men and prove informative as to the practical side of this new development in goods finishing, which, Mr. Arrington predicts, "will eventually become a standard finishing operation such as mercerization is today" . . .

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We have found a tremendous variation in the shrinkage characteristics of different fabrics and even the same fabric from the same or from different mills will vary from lot to lot. We are never able, therefore, to set a standard on any given construction but must check every lot of goods before and after shrinking to be sure that the job is properly done.

We have had degrees of shrinkage on different fabrics varying, I should say, from about two per cent up to as high as 15 per cent. It might surprise you to know that a fabric like a blue denim, for instance, usually contains approximately ten per cent shrinkage. That means almost four inches in 36 inches.

Difference in Elasticity

We have found also a decided difference in the elasticity of fabrics which are bleached prior to sanforizing as compared with unbleached fabrics which are sanforized only, such as chambrays, hickory stripes, denims, coverts and fabrics of that general nature. That of course is to be expected because on the unbleached fabrics none of the waxes or other impurities are removed, which naturally leaves the fabric much more elastic.

We have found also that certain fabrics continue to shrink slightly even after the first washing, it sometimes requiring as high as three or four washings to get absolute and complete shrinkage. In cases of this kind it becomes necessary for us to slightly overshrink the goods in order to make allowance for this differential.

The question of starches, sizing and finishing material used both at the grey mill on unbleached fabrics and at the finishing plant on bleached fabrics is quite an important consideration in the whole picture.

We think we have learned a good deal by experi-

ence about these various points, as well as others, but realize at the same time that we have only just begun. Even at the present stage of development a lot of educational work still needs to be done with the garment manufacturers, the laundry, and even the consumer himself.

A garment manufacturer, for instance, can largely destroy proper shrinkage by improper handling in his factory. If his girls on sewing machines stretch the goods in sewing them, as they could very easily do because the fabric is naturally elastic after being shrunk, the garment upon being washed will shrink and the consumer very properly is dissatisfied because all he knows is that they told him at the store that the garment would not shrink and it did shrink. A great many garment manufacturers have already found that a fully shrunk fabric is a horse of a little different color from an unshrunk fabric when it comes to his manufacturing.

Even if the shrinking is properly done and the garment is properly manufactured, the laundry can still largely destroy the effort put forth up to that point by improper laundry methods. We have had cases where certain garments were reported to shrink with the first washing but to get larger with a second washing. This is undoubtedly due to abnormal stretching of the garment while in a damp condition at the laundry. Likewise, if the garment is subjected to excessive use of chemicals such as caustic soda or gets excessively rough handling in other ways, naturally there will be some shrinkage because our tests are based on normal washing operations and are figured as an average treatment that a garment will get in a power laundry. We can shrink a fabric so that it will stand these treatments if we know what these treatments are, but naturally it is impossible to control them when the individual laundries are scattered throughout the length and breadth of the land.

Educational Work Necessary.

Some people seem to have the impression that a fabric if properly shrunk should not change in dimensions irrespective of any or all possible treatment or handling that it might get after being shrunk. In other words they expect it to remain almost like a piece of sheet steel. That of course is an absolutely foolish expectation because the very nature of a piece of cotton cloth is one of elasticity, and it is for several reasons, therefore, that I say that educational work needs to be done with everybody who has a part in producing the garment and in fact with the laundry and the consumer after the garment has been bought.

All of these things cannot be accomplished in the twinkling of an eye. It will probably take several years to sell everybody along the line on the proper handling of shrunken fabrics and garments. It is my opinion that before many years consumers will demand from their merchants garments that will not shrink, whether they be shirts, underwear, cotton suits, ladies' dresses, children's clothes or even work clothing garments like overalls.

We naturally think that sanforizing is head and shoulders above other shrinking processes. We think this is pretty well proven by the increase in demand during the last couple of years. Starting with four original plants which were licensed by Cluett, Peabody & Company the licensees today number either sixteen or seventeen. Our plant started with one machine and now has three. If this development can be made during a period such as we have had for the last two or three years, the development should be even more rapid with the return of normal conditions. In addition to believing that in a very few years consumers will demand fully shrunk garments it is my belief that sanforizing will eventually become a standard finishing operation such as mercerization is today.

The Recovery.

ABOUT three years ago one of America's recognized economists made the statement that as fierce as competition was at that time, it was only the beginning of more drastic days, unless business could learn some lessons that it did not know. Three years have passed since that statement was made and the ravages of competition still prevail, although one of the most intense depressions has occupied our time and thought.

As some seem to think, we are at the beginning of a new day in which prosperity to some extent shall return, but the same old selfishness, the same old individualism, the same old economic philosophy of the decades that have passed still seem to prevail.

Mr. Hoover, when he was Secretary of Commerce, made the statement that the government had not willingly or gladly taken over any regulatory function of business, but that it had been compelled to take over such functions because those who were discharging them were doing so at the expense of the great body politic.

We hear expressions today of desire for a dictator, desire for a commission to regulate the hours and wages of industry and to apportion to each industry its productive limit. We hear many similar statements which we think for the time we shall recommend as a temporary expediency in order that our recovery may be hastened. History is replete with evidences that when once a government has assumed statutory controls of certain business interests that it seldom releases them, because it is an evident fact that the conditions which made the controls necessary still exist and when once these controls have been released the same conditions will assert themselves.

The cotton-textile industry is struggling with several important problems, the partial solution of every one of which has been offered by various leaders of the industry, yet, because of individualistic philosophies these solutions are not accepted. If these social and economic conflicts are not removed by the industrialists themselves it is only a matter of time until the state and national government will step in and exercise a control more drastic and more far reaching than would be necessary for the industrialists themselves to effect.

Textile Week in Greenville

Here is a brief review of the activities in Greenville during Textile Week last month, and reference to some of the highlights among the newer developments displayed at the Southern Textile Exposition . . . .

THE Tenth Southern Textile Exposition, held in Textile Hall in Greenville, S. C., during the week of October 17 to 22, was in every way an outstanding success. Although a period of depressed business conditions which had prevailed practically since the 1930 exhibition had naturally resulted in a decreased number of exhibits, the character of the show was entirely satisfactory and worthy of the unprecedented attendance of mill men who displayed a surprisingly satisfactory interest in the equipment, machinery, materials and services which comprised the exhibition.

From the standpoint of the mill man, for whose interest and assistance the exposition is staged in Greenville biennially, there was one especially significant feature. This was the appearance at the show of a number of things not previously shown, and refinements and improvements, developed by manufacturers during a period of inactivity with a view to more efficiency and economy. Coming at a time when the industry had already begun a definite movement toward more general and steadier operation, and following a period during which the mills had not been fully able to maintain their processes and plants up to normal—the exposition presented the right opportunity at the right time for serious investigation into the latest in machinery, equipment and supplies, and the progressive mill men who came in surprisingly large numbers were thoroughly gratified at the educational and interesting array of exhibits at their disposal.

The viewpoint of the exhibitors was unanimously voiced in the expression of one veteran exhibitor, who was delighted with the active and serious interest displayed by the visiting mill men who investigated his exhibit. This man said that, from the very first day of the show, the attendance had exceeded his most hopeful expectations; and that the attendance was, more than at any other exposition at which he has exhibited, of the interested type which is the delight of the exhibitor. The well-presented equipment combined with this mutually valuable mental attitude on the part of the textile men to establish the Tenth Exposition as a milestone, a turning point, in southern textile development and progress.

Various Activities During Week

A number of exhibitors reported actual sales during the show, but the greatest general good came from the opportunity of contact of executives, and of investigations—and the wise mill man and the wise manufacturer will follow up intensely the interest engendered at the show, with special attention to individual application.

The Southern Textile Exposition, comprising an elaborate and comprehensive aggregation of exhibits of practically every type of machinery, equipment, supplies and services required by the textile mill was of course the nucleus of a week of related activities. Brief and appropriate ceremonies opened the exhibition formally on Monday morning, with a brief talk by Samuel T. Hubbard, of New York, former president of the New York Cotton Exchange. The chief features of the exhibits will be covered in later paragraphs.

Cotton Fashion Show

On Monday evening, the Exposition management introduced an interesting innovation — a cotton style show—conducted by Miss Catherine E. Cleveland, of The Cotton-Textile Institute. The show consisted of six groups of costumes, including thirty-six models presented on mannequins. The groups comprised evening, afternoon, and town wear, sports costumes, pajamas, and rainwear. New fashion points emphasized were high necks, exaggerated sleeve treatment, fitted silhouette, contrasting materials and colors, lingerie touches, and ornamental use of buttons. Cotton fabrics accented in the evening group were velveteen, corduroy, and lace; afternoon group, lace and velveteen; town wear, pique and hollow-cut velveteen, corduroy, tweed and novelty fabrics; rainwear with matching umbrellas, suedecloth, broadcloth, corduroy, and whipcord; sportswear, knitted lisle, tweed, novelty wool effects, corduroy, suede, whipcord and velveteen; pajamas, novelty and plaid terry cloth and black velveteen.

Dances and other entertainments during the week were provided for exhibitors, and their representatives, and the mill men—the social features culminating with a cotton ball held by the Southern Textile Association on Friday evening, October 21st.

Engineers' Meeting

Visitors who are members of Rotary, Kiwanis and other civic clubs were guests of the Greenville groups in these respective bodies at meetings with special programs throughout the week. The American Society of Mechanical Engineers conducted the annual meeting of its Textile Division on Wednesday of Show Week, the program embracing a technical session where long draft spinning was discussed by James L. Truslow of Whitin Machine Works; an evening banquet session with addresses by W. S. Lee, head of the Duke Power Co., and Eugene W. O'Brien, editor of SOUTHERN POWER JOURNAL—and an afternoon program which embraced visits to nearby textile plants and an engineers' golf tournament, which was won by Peter J. Hinds, vice-president, American Thread Company.

On Thursday evening, the associate members division of the Southern Textile Association held a

get-acquainted dinner; and simultaneously the members of *Phi Psi*, national textile fraternity, who were attending the exposition, met for an informal banquet.

Southern Textile Association

Friday, October 21st, was Southern Textile Association day, bringing the semi-annual meeting of that organization. This consisted of one session, presided over by Frank K. Petrea, president; Eugene W. O'Brien, editor of SOUTHERN POWER JOURNAL, and Richard W. Arrington, vice-president, Union Bleachery, Greenville, S. C., were the speakers. Mr. O'Brien discussed recent developments in auxiliary equipment, and Mr. Arrington spoke on "Shrinking in General—Sanforizing in Particular". An abstract of Mr. Arrington's discussion appears on page 34 of this issue of COTTON.

Some High-Lights on the Exhibits

There was much in the way of new machinery and developments to interest the mill man. Taking up first the weaving, the new X model high speed loom was operating at 192 picks per minute on a 64x60 construction. This loom, shown first in 1930, embodied a number of new features. One of these was the use of three shipper handles, two on the front and one on the rear, the latter making it possible for the weavers, who are gradually adopting the plan of working in the back alley, to start the loom without leaving the beam alley. To prevent starting the loom when the fixer is busy in the other alley, a shipper-locking device is included. This loom was equipped with staggered cams, to cut down warp breakage; a roll and sheave top motion; and a new bobbin support on the battery with up and down and in and out motion to prevent bobbins turning in the battery.

A new loom was the C model automatic shuttle changing loom, running on 150 denier rayon warp and filling, which changes the shuttle without stopping the loom. It was equipped with positive let-off, and intermittent temple thread cutter and center filling fork; and a wooden whip roll with which tension may be removed from the warp to prevent strain when the loom is not in operation.

A new automatic duck loom, Model R, was weaving 64-inch No. 6 duck, with 32-inch beam head and 9½-inch bobbin. This loom is equipped with Stafford thread cutter, band friction let-off, Midget feeler, warp stop motion, three sets of two-harness cams, band friction let-off, and shipper handle on both ends of the loom.

A striking weaving development shown was a simple electric harness warp stop motion, operated exclusively by the heddle mechanism, and eliminating all drop wires. The heddle is designed to be drawn in by a new drawing-in machine now under construction. Another interesting article was an automatic safety harness control which, upon breakage of the harness cord or strap, instantly stops the loom electrically. There was also a self-adjusting warp tension device; a new Jacquard doup or leno flat steel heddle with which any turn of the heddle caused by the slackening of the warp does not affect the operation; a hook reed for rayon weaving permitting the use of present slasher equipment.

A line of pick counters with flexible shaft, including a re-set model which cannot be turned forward and which stops and locks at zero, and improved design in another line which featured a durable finish and the location of the locking mechanism on the front of the device, together with counters of the pre-determining type, were other interesting weaving aids.

Among the new cloth room equipment were: a shearing machine with automatic attachment to protect goods for the full width against any foreign matter or unevenness; compressed air folder; silent chain drive on sewing machine, eliminating the gear drive to the rolling up drum; sewing machines making the butted seam with stitches made closer at the selvage, for aiding in keeping selvages in butted relationship; a three-bar regulating cloth expander, rubber covered, with aluminum bobbins with special bushings revolving on steel bars; the bobbins being covered with a rubber sleeve extending across the expander. Another item was a rubber covered expander equipped with roller bearings, and a regulating expander equipped with composition clutches, etc. There was also a patented scroll roll.

A combination brushing and shearing machine, handling the cloth in a vertical plane, and embodying a feature disengaging the brushes for handling cloth only to be sheared, as well as individual suction on each brush, etc., was displayed.

An outstanding exhibit in preparatory machinery was a controlled draft drawing process of the two-stage type involving a lap winder of improved design making a lap of sixteen slivers doubled with a draft of 16 into a sliver by means of five sets of rolls—two metallic and three cork; a recirculating air filter which eliminates the dust room for pickers; a cotton cleaning and conveying equipment operating on the gyrating principle.

Two methods of cotton conditioning, or of spraying oil on cotton, were shown in improved design, both affording a vaporized condition of the oil for assuring more uniform distribution of the oil on the fiber, and both being applied at the picker—one applying the oil just prior to its entrance to the picker feed rolls, the other supplying a vapor inside of the beater chamber. A new pump with a special means of altering the length of the stroke of the pump piston for regulating the amount of oil applied was exhibited.

The spinning room was covered in a number of exhibits of which various principles of long draft, including a new development of a four-roll method without aprons, as well as improved designs of the apron systems, were featured. There was a new traveling cleaner for removing fly and lint from spinning frames; a new bobbin holder and creelboard wiper; patent reversible tape drive whereby cylinders can be run in either direction without reversing the tapes or adjusting the idler pulleys; ball and roller bearing equipped cylinders; variable speed drives for spinning frames, for both warp and

It was natural that even some of the "regulars" would not be among the exhibitors at the Tenth Southern Textile Exposition last month. One of the more significant evidences of the unqualified success of the show was the expression, by many who attended but did not exhibit, especially as the week progressed, of the sentiment, "We wish we had gone ahead and taken space".

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filling wind; roller bearing spindles; traversing thread guide, and other features. An innovation was the display of a new type of hank clock embodying a dial, positively driven for indicating the actual front roll speed on the dial in full view at all times while the frame is in operation.

A Type K bobbin stripper with improved feeding and stripping mechanism and high speed operation was on display.

Warp preparation equipment was displayed in several different forms, including improved designs of the circulating spindle machine, higher speeds on the established rotary and reciprocating cone winders, with magazine creels for tip-to-toe transfer at warpers; and the automatic spooler with improved knot-tying mechanism producing higher speed, and the super-speed warper which involved a revolutionary change whereby the warper head, running at 900 yards a minute, drawing the yarn over-end from the cheeses, which are now stationary in the creel. The new arrangement also provides for creeling on the inside of the V-creel, while a warp is being made on the outer sides of the creel, an ingenious arrangement being provided for reversing the creel to place the fresh set of cheeses in position immediately for threading up and turning the used cheeses to the inside for creeling.

A package-beam dyeing machine; a skein dyeing machine and a new type of dye jig were among the finishing machines on demonstration.

Auxiliary developments included a number of items involved in the generation, development and transmission of power. A "compensated" belt, designed to compensate within its own structural members for the major shortcomings of standard rubber belts, was new. This belt has a specially-treated pulley surface with twice the coefficient of friction of standard rubber belts, it was explained, and is "compensated" to run on small pulleys. It was explained that the tension of the outside duck ply is equalized with that of the inside duck ply, eliminating the tendency for fasteners to work loose and pull out.

The standard types of v-belt drives and sheaves, with improvements in design, ball and roller bearing applications on textile equipment, notably on the pitman roll, etc., belt lacing equipment, belt and conveyor fasteners; electrical control equipment including undervoltage time delay equipment; self-cleaning and lint-free textile motors; transmission equipment and belting—were among the power lines, and late improvements in valves, traps, conduits and other supplies especially designed to meet the requirements of textile equipment were displayed.

Humidification and heating equipment shown emphasized automatic control and regulation, and self-cleaning nozzles for humidifier heads, and there were several different models of small humidifying outfits for offices, homes, testing laboratories and similar use. Instruments for indicating and recording and controlling temperatures, pressure, etc.—including engineering service and systems for warp conditioning, finishing machines, dyeing equipment, etc., comprised an important group of exhibits.

The increasing part being played by rayon in the southern industry was indicated by displays of several rayon manufacturers, showing samples of materials made from this yarn exclusively and in combination. The continued development in rayon weaving was recognized in exhibits of winders, twisters, doubler-twisters and warping and sizing machines for this yarn.

Loom supplies, gears, belts, trucks and other supply parts and items made partly of cotton in various forms were seen in many of the exhibits. Aluminum parts for textile machinery, aluminum primed lumber, belt preservatives; pressure-treated lumber; industrial paints for the mill and village; corrosion resisting materials; floor-maintenance equipment; corrugated shipping cases; wire-tying equipment; roofing and insulation materials; water-treating and softening equipment; steel window sash, cotton and cloth balers and stackers—these were among the accessories and supplies which were on exhibit. Improved finishing oils, starches, chemicals, lubricants, bleaching agents, sizing products, softeners, sunlamps, color matching equipment, spinning and twister rings in improved design; hard rubber and vulcanized fiber equipment—these and many other items were presented.

Thus, a review of some of the high-lights of the show. Space limitations and the inadequacy of second-hand description preclude a detailed presentation of every individual item. As has been indicated, the greatest significance of the exhibition as a whole is the interest manifested by the unprecedented attendance of worth-while visitors. Its greatest value to the mills is in the opportunity provided at this time for investigating the available up-to-date machinery, equipment, supplies and services available to them; and to the individual exhibitor as the means of developing definite and specific interest on the part of the mills in each instance.

Knitwear Industrial Exposition.

For the first time in the knitted outerwear industry, the National Knitted Outerwear Association will hold an Exposition at the Grand Central Palace, New York City, during the week of February 13 to 17th, next year concurrently with their annual convention. The exhibits will consist of machinery, yarns, dyes, needles, trimmings, buttons, containers and many other items used in producing knitted outerwear, it is announced. Sidney Korzenik, secretary of the Association, is arranging the program. A. B. Coffman, 35 E. Wacker Drive, Chicago, will be manager of the exposition and handle space applications.

The Tootal Anti-Crease Process.

BECAUSE of the interest manifested in this country concerning the development of a process of reducing the creasing tendency of cotton and rayon goods, the following abstract from a description of the Tootal process is presented.—The Editor.

IT is well known that various fabrics show very different susceptibility to crushing and crumpling. Good quality woolen fabrics are the least susceptible to creasing, as the individual hairs are resilient. Cotton goods, on the other hand, readily crumple, as the cotton hairs are relatively plastic. Hence when a piece of woolen or worsted material is rolled into a ball, heavily squeezed in the hand and placed on the table, it will open out, recover its shape, and show little sign of creasing. A piece of cotton goods when similarly treated remains heavily creased. Linen and rayon behave like cotton in this respect. A process has recently been produced by the research department of Tootal Broadhurst Lee Co. Ltd., of Manchester, whereby this creasing property of cellulose material is largely reduced, so that cotton and linen are made more wool-like in this respect, and rayon approximates more closely to silk.

Although the word "creaseless" has appeared in the daily press, this is not claimed by the company as completely creaseless materials would not have the requisite textile properties. The new property is better described as a combination of resistance to and recovery from creasing. This process is based on the incorporation of a synthetic resin in the textile material, and is a final process following after bleaching, dyeing or printing.

The impregnation of fabrics with synthetic resin solutions is not new, as many laminated products have been made from textile materials and synthetic resins, but in these cases the resin is distributed substantially on or between the yarns and the hairs, whereas in the new process the material is within the fiber. The difference is obvious, if we consider a rubber hose pipe reinforced with metal of which two varieties are well known to readers. In one case the metal is within the rubber which is flexible and feels soft, whereas when the rubber is surrounded by the metal the pipe loses its rubber-like character.

Similarly when cotton or rayon is coated with resin it becomes stiff and papery, but if the resin is actually within the fiber the textile properties are preserved, and a high degree of resistance to and recovery from crushing is conferred on the material. The amount of resin employed expressed as an increase in weight on the original material is not critical, 15 per cent being a good average figure.

The fabrics are impregnated by methods usually employed in finishing works, the condensation product at this stage being in aqueous solution. The low temperature drying follows—below 100°C. The final stage consists in polymerizing the condensation product to the resin stage by a modification of the known methods of resinification. Any uncombined matter may be removed by the washing process which is fairly generally one of the last finishing operations.

In so far as the anti-crease property is concerned the result is obvious; there are, however, two main methods of measuring the effect produced. Both of these consist in folding a small piece of cloth 4 cm. x 1 cm. in half and allowing it to remain under a substantial weight for a definite period of time, after which it is placed by means of forceps either on a wire or upon a surface of mercury, and allowed to remain for a short definite period of time to "recover." The distance between the extremities is a measure of recovery. The following figures illustrate typical results which have been obtained, by examining pieces of treated material. The size of the test piece is 4 cm. x 1 cm.

	Untreated.		Treated.	
	Warp.	Filling.	Warp.	Filling.
1. Cotton warp, viscose weft	1.7	2.2	3.3	3.3
	1.5	1.9	2.8	3.7
	1.7	1.3	2.9	3.8
2. All spun viscose material	2.4	2.6	3.3	3.1
3. Viscose and cotton mixture	1.2	1.2	3.3	3.1
4. All-viscose crepe georgette	1.1	2.0	2.8	3.0

The above figures compare very favorably with woolen or silk fabrics of similar construction.

In the case of rayon of the regenerated cellulose type, a marked increase in both wet and dry strength is obtained, the former being of the utmost technical importance. At the same time, the extensibility of the rayon is reduced, which is also a technical improvement. Typical results are as follows:—

	Dry.		Wet.	
	Warp.	Filling.	Warp.	Filling.
1. All spun viscose—				
Untreated	49	59	19	28
Treated	66	97	37	57
2. Viscose voile—				
Untreated	24.6	21.5	x	x
Treated	33.0	23.8	22	16.8

x = less than 5 lb.

Extension at Break.

Sample	A.	B.	C.
Viscose filament weft—			
Untreated	36%	37%	35%
Treated	19%	22%	25%

Slipping.

In many fabrics containing rayon the threads tend to slide on one another and move out of position, a defect frequently referred to as slipping. This tendency to slip is also greatly reduced by means of the anti-crease process.

Shrinkage

Laundry shrinkage is considerably reduced, typical measurements being as under:—

Percentage Shrinkage of Viscose.

	A.	B.	C.	D.
Untreated	6.1	5.5	3.0	1.2
Treated	1.5	1.4	0.5	0.6

The testing of knitted goods cannot be effected in the same manner as woven material, but the process offers great advantages for knitted rayons of the viscose type.

One of the main defects of knitted viscose material is that the handle is much nearer to that of cotton than to silk, as the latter has a much smoother outline than viscose. The known defects of viscose are in some cases exaggerated by the knitted construction, that is the extensibility both wet and dry results in

the deformation of the garment, and for this reason knit viscose material must be washed and dried very carefully. If hung up in the ordinary manner the garment will extend very appreciably in length. This is not the case with silk. The edges of material such as scarves and the hems of garments show a pronounced tendency to roll, particularly when wet, and the ironing and finishing of such material is a matter of some difficulty. A further disadvantage in connection with the extensibility lies in the ballooning and other deformations formed by tension, i.e., elbow, knee, etc., even when dry. In addition to these, there is the well-known disadvantage of poor strength, particularly when wet. Viscose knitted material, although showing less susceptibility to creasing than corresponding woven goods, marks readily under heavy pressure.

Technical Advantages.

The technical advantages of the process may be summed up as follows:—

1. Woven and knitted fabrics of cellulose material can be made much more nearly like wool or silk in their resistance to and recovery from creasing, without detracting from their draping qualities or handle.
2. The dry strength of regenerated cellulose is increased.
3. The wet strength of regenerated cellulose is greatly increased.
4. The process increases the weight of the material by an average of 15 per cent. Experience shows that in some cases 10 per cent or more may be taken from the fabric, and if the anti-crease process is applied, a cloth having similar cover to the original unreduced cloth will result together with the added advantages of the process.
5. The tendency to slip is reduced.
6. The laundry shrinkage is reduced.
7. The extensibility of rayon material is greatly reduced, and this obviates many of the forms of distortion to which rayon fabrics are notoriously liable.
8. In the case of fabrics composed of spun viscose, the individual cut fibers are more firmly held as a result of the anti-crease process.—*The Textile Recorder.*

Report of Henderson Discussion Meeting.

(Continued from page 32.)

cases it happened to be double creel.

Mr. Crouch, of the Rosemary Manufacturing Company, reported that in spinning 14s to 22s regular spinning he had improved the breaking strength of his yarns from four to six per cent by using the same roving that he had been using in single creel, doubling the roving and doubling his draft.

W. A. Holmes reported that he was spinning 8s to 26s out of 4.00-hank roving, his average number being 22s, draft 11, double creel. He used as high as 13½ draft on double creel successfully.

One member said on warp number 16s he used 2.00-hank roving, double creel, draft 16, and he ran a test on this and found that there were 35 ends down per thousand spindles per hour, and the yarn broke from 90 to 100; regular spinning frame, using local ⅞-inch cotton, ring diameter 2¼ inches.

At this point a question was asked if there were any changes that could be made on the ordinary old style spinning frames without the additional long draft that would make it easier to get good results with increased drafts.

Chairman Lanier stated that he had found it necessary to draft 13, or single roving—did not mention the yarn number—and found in making this change that by increasing his break draft four teeth he improved the evenness and strength of his yarns considerably. At this point there was some discussion as to the benefits to be derived from increasing the break draft between the back and middle rolls on the old style spinning frames.

Two or three of the members stated that they had made several experiments along this line and had found no benefits derived therefrom. A point was made that this would likely depend on the twist in the roving. In case of more than standard twist probably the break draft would be of more benefit than it would in the case of standard twist.

General Chairman E. M. Holt at this point discussed an experiment he had run trying to increase his draft by the means of a light leather covered middle roll but found that he could not gain anything by its use because he was running less than 1-inch cotton. He had found that only those mills using 1 1/16-inch, or better, cotton, were able to gain any benefits from this installation. He also stated that they had changed one of their spinning frames on 23s spinning yarns from single to double creel and found much better results.

Mr. Holt described a new installation of machinery that his mill was putting in at this time. The mill will have three processes of roving, one drawing, double creel spinning on 22s warp and 23s filling. Between the cards and drawing a machine will be installed running 16 card slivers with only enough draft to blend them and put stock onto laps, and each lap will make one can of finish drawing slivers. The drawing draft will be 16, and there will be five rolls on the drawing frames with a graduated draft with, as usual, the greatest draft between the first and second roll. The stock will come from the finish drawing to slubber, to the intermediate, and from there to single creel, long draft spinning with a draft of 15, running ⅞-inch to 1-inch cotton. The machinery builders have assured his mill that the strength and evenness will be as good as before or better.

There will be approximately 16,000 spindles in this installation. They are installing long draft on a few seven-year-old spinning frames, ten of which are band driven, the rest are tape driven. He also stated that his spinning was equipped with variable speed drive, starting on 22s yarn with a front roll speed of 128 r.p.m. to finish at 140, the average speed being 138. In other words, the maximum speed is reached before the bobbin is half full.

The time for adjournment having been reached, the Association adjourned to meet in Raleigh some time next Spring.

CURRENT TOPICS

Talk of the Month.

COTTON goods trading since July has been marked by two distinct movements, the last month being notably a period of progress in finished cloths. Previously there had been a notable advance in gray goods, closely allied with the strong summer rise in raw cotton. Thus the business has developed in series from the raw material upward and the continuation depends upon conditions beyond the industry itself. The ultimate consumer is the arbiter of progress, so general business is the touchstone of hope for cotton manufacturers. Out of depression is an uncertain process, because economic movements are not in balance at either low or high points. Many cotton manufacturers have urged a conservative program of expansion and this is well, in view of the distortions still existing in the relations of the one industry with other economic branches; the political emergency, the unhealthy tax condition, etc.

The General Situation in Textile Markets.

Meantime, what appears to be a decidedly significant development, embracing the cotton industry and pervading the whole industrial fabric, is the trend away from shoddy production. The degradation of quality is a by-product of poor times, when cut-throat competition leads to a general striving for business at whatever low prices merchandisers and the public will pay. Price as a first and last consideration is a losing proposition, but desperate producers set a pace which seemingly all must follow. It runs its course and then the reaction sets in. Perhaps that is the most potent evidence of the turn of the tide out of depression. At any rate, the tide upward became general during the fall, especially in the broad field of textiles, and the swing toward quality has gone hand in hand therewith.

Other healthy elements in the recent situation have been the attainment of a condition wherein supply and demand have reached a balance conducive to strengthening of the market; also consideration of the matter of better wages indicates growing confidence that the time of stress is passing. Gray goods have been susceptible constantly to the irregularities of prices for cotton, although even these have resisted the extreme declines in the raw material. They were helped somewhat through the period of greatest test of values by the fact that a previous heavy movement gave the mills plenty to work on and accordingly little need to press for orders when buyers were inclined to use reactions in cotton as a weapon to force reductions in goods. Many finished goods early the past month had gained strength independent of raw-material costs, purely based on distributor demand and inadequate supply.

In regard to wages, the industry is emerging from the period when sound fundamentals were thrown into the ash barrel because of ruthless competition and now the level of employee earnings becomes again a factor in common purchasing power. If profits are to be made, they must issue from public buying and the circle of economic life—by and large the producer is the consumer—enjoins it upon the employer to adjust wages so that the standards of living in this country can be kept up to a healthy level. Spasmodic instances are appearing to show that the tendency is under way. It was frankly admitted by the retiring and the incoming president of the National Association of Cotton Manufacturers at the recent annual meeting that the present wage scale in the textile industry is too low. That is a good beginning toward the remedy of this evil. Voluntary action will be better than coercion through adverse public opinion.

In the textile industry and outside it fairly unanimous tendency is under way which reflects the general confidence that a new era of business has been entered regardless of whatever the temporary swing may show of the influence of elections and such things. The machinery manufacturers have been preparing through the dull years for a rehabilitation movement in industry, and not in vain according to current reports. During the past couple of months makers of textile machinery have reported convincingly to this effort and the producers of yarns or goods who do not now see the light are facing the danger of being outmoded. In one quarter, it was recently stated that the modernization and replacement of old and worn-out equipment and buildings needed by industry as a whole to offset decrease in upkeep programs the past three years would cost about $30,000,000,000. Approximately 50 per cent of the factory equipment of the country is declared by an expert to be obsolete.

New England Mill Situation.

IN the middle of the fall, Bradstreet's Weekly typified the sentiment of the business world with the expression that "high optimism" had sobered down to a "considerable amount of confidence". It might be said that the leaders of the New England cotton industry have held strictly to the sober note from the beginning of the upturn, although not unmindful or appreciative of the definite betterment that has taken place. Conservatism has been an inherent quality of this region and by and large it has worked well. The leaders are naturally ready to take advantage of their opportunities to the utmost, but they are cautious lest production get out of bounds because of overbuying.

Nevertheless, it was estimated late in September, by Dun's, that cotton mills of New England had increased production about 25 per cent in the preceding two months, bringing their average up to approximately 75 per cent of normal. The orders for

raw cotton, reports on wages and evidence of rapidly increasing payrolls have borne testimony to the wide advance of business in cloths and yarns throughout the northeastern mill regions. The cotton industry has shared in a business improvement which generally was reported early in the last quarter of the year to be more than seasonal, though still below last year's level in dollar volume. Textiles and shoes were leaders in the advance. The New England Power Company indicated the lead of textiles by a statement that during August and the early days of September the increase in its power sales was in large part confined to their production.

Bank papers, the New England Council and other civic organizations have been calling to attention the advance in textiles as a feature of progress in New England. Only the leaders of cotton manufactuer have sounded a note of caution, albeit they are the ones who should be concerned most of all if there be need. The public buying is the touchstone of success in production. The problem of how long mills may run is one of correlating the output to the indicated demand. The new president of the National Association of Cotton Manufacturers, Ernest N. Hood, said in the middle of the fall rush for goods that "we read in the papers that business improvement is perhaps most pronounced in textiles and in shoes and leather. At any rate we know that sales of cotton goods have reached record heights and in many lines of fabrics an oversold condition prevails. We believe that only a small percentage of the goods sold by the mills have as yet been absorbed by the ultimate consumer."

By this time the consumer demand will have demonstrated whether the buyers overreached in the initial broad buying of cotton goods. Regardless of that fact, the industry faces a grave problem as business looks toward normal. Fall River has been coming back into the active field of cotton manufacture. This is "cheerful news", says the Fall River *Herald News*, "after so many long dreary months of waiting and disappointment." But it is hoped that "the bitter lessons of the long depression" will be profitable to the industry. "The periodic depressions and curtailments in the textile industry have been due almost entirely to overproduction." Something to prevent surplus production or ("much to be preferred of course)" to increase consumption, is essential. Elimination of night work and a shorter week are advocated as at least a partial solution.

At a time when cotton mill men of Massachusetts are confirmed in the conviction that they should be relieved from what they consider already burdensome and unduly restrictive laws, they are confronted with the possibility of another measure of legislation with new expense entailed. "There is a disposition to drop a compulsory unemployment insurance law into the laps of the manufacturers," said Charles F. Horan, member of the workman's compensation law committee of the Associated Industries of Massachusetts, at the meeting of the N. A. C. M. "A bill will be presented to the Legislature modeled after the Wisconsin plan which has all sorts of influence behind it and I believe we are going to have such a bill presented whether we like it or not." As this is a move with the American Association of Labor Legislation behind it, other States will be concerned with the effort as no doubt it will be carried further so far as it succeeds.

Among the interesting features of the recent period in the cotton industry has been the announcement of the process developed by the Tootal, Broadhurst Lee Co., Ltd., of Manchester, England, for anti-crease cotton or rayon fabrics, followed by the licensing of manufacturers in this country to use the method. It was announced late in September that Sayles Finishing Plants, Inc., of Rhode Island was the first American finishing organization to be appointed a licensee for the process. Another appointment quickly following was that of Pacific Mills, of Massachusetts. The advance of this process will be watched intently, for its possibilities are great.

In regard to the recently announced tax abatement plan to which the Lewiston, Me., city council had agreed, an injunction was granted by the Supreme Court of the State in response to an appeal by the Taxpayers' League, restraining the city from executing the proposed contract with leading textile mills. Neither the city nor the corporations, it was stated, would appeal from the court decree.

The Share-the-Work Movement.

AN outgrowth of the recent business conference, called by the President, is expressing itself in a program known as the Share-the-Work-Movement. The program was not original with the committee and not unknown to a great many industrialists inasmuch as it had already been tried by several corporations and endorsed by certain trade associations.

In short, the Share-the-Work Movement means dividing the work among a great number of employees as is economically advantageous to both employer and employee, taking into consideration the fact that the coming winter is going to be more serious for those who remain unemployed than any of the winters that have passed. This economic stringency on the part of the unemployed will be intensified by the fact that reserves have been depleted, both their own and the communities in which these people reside.

Psychologists say that the two strongest and most impelling motives of mankind are those which make for security and self-respect. Back of these two motives lies the economic situation as a means of securing the satisfaction of security and self-respect.

Security has a rather constricted meaning in these days in that it has been narrowed to mean an acquisition of those simple absolute necessities of life, and self-respect for a great number means a security which will prevent them from accepting charity, or being wards of a community.

The Share-the-Work movement means increasing the number of people on the pay roll and thereby giving to as large a number as possible the means of earning at least a meager livelihood. It is not a five-day week movement, nor a six-hour day movement though it embraces all of them. In a sentence

it may be said to be the application of flexibility to the working period so as to provide at least some work and more likelihood for increasing the number of workers.

This is no new idea to the cotton textile manufacturers of America because they have perhaps been the first to appreciate the value of such a plan. They have shared the work with different members of the same family and with different members of different families and with various individual workers, earnestly endeavoring to provide a means whereby their loyal and faithful people could secure a livelihood. They have gone further and operated their plants unwisely from a productive or market demand point of view, endeavoring to give those dependent upon them economic support.

This Share-the-Work movement, operating through large and varied industrial organizations will have a great tendency to destroy the fear factor and establish in its stead confidence. It will have a tendency to relieve the great ranks of unemployment of its congestion and give hope of a better day to those who are in doubt and discouraged.

Men are now coming to understand that social and economic prosperity depends more upon increasing the purchasing power of the great army of wage workers than upon producing goods at the lowest possible wage cost.

This Share-the-Work movement means a greater spread of purchasing power, a greater confidence in the stability of our industrial organizations.

Formulating a Plan.

ISOLATION expresses itself in terms of extreme nationalism and the policy of home markets becomes more and more a theory rather than a workable policy. Regardless of how intense such advocates may be, international dependences and international relationships finally project themselves forcibly into the picture.

Early in the year there is a possibility, a strong likelihood, that an International Congress will be called in London to discuss the various economic problems of the various nations represented. While this Congress is not supposed to have any political aspects, yet what it does will have a rather distinct political reaction because politics and economics are so vitally connected.

The main purpose will be to see if the nations of the earth can work out some common action that will improve the international, commercial and financial relations. Tariffs, imports and exports, quotas and other relationships will be discussed as intelligently as the capacity of the individuals will permit.

The United States, now in the throes of the great partisan, political struggle, with dozens of plans projected by various groups for improving the situation, is handicapped by its own entangling web, and yet without any definite plan, or any definite instruction, our delegates are assembling at Geneva, hoping to evolve something of a constructive contribution.

The United States with its various groups struggling selfishly for their own economic safety, is handicapped in trying to form an unselfish, far reaching, socialized economic policy. It would be a most important representative body and doubtless great recuperative plans could be evolved, provided the various representatives were unified and permeated with an earnest desire to solve the problems in a way that the greatest good would result to the greatest number.

International relationships cannot be ignored or sidetracked. They are an abiding, determining factor in all of our relationships.

Comment on the Cotton Market

New Orleans, October 14th, 1932.

EXCEPT for periodical bulges and a temporary sharp advance during the latter part of September, the trend of the cotton market was downward during the past month, having recorded the lowest price levels for the downward movement yesterday. Climatic changes from day to day furnished opportunities for scalping operations. Depressing influences were the weakness of grain and stocks, easier and less active domestic goods markets, hedging and the somewhat larger official crop forecast. There were periods of unusually cold weather for so early in the season, with much frost, but apparently, judging from official comment and action of the market, no material damage was done.

Substance of Washington's summary for week ended October 12th.—"The week was abnormally cool in the cotton belt but appreciable rains were confined to the eastern third and some central and northern localities. Picking was interrupted to some extent in the Atlantic States and locally in some northern districts but picking made generally satisfactory progress. Heavy to killing frosts overspread the northwestern portion of the belt, stopped growth and caused late bolls to open rapidly."

The general business situation, while not showing the improvement expected, nevertheless seems to be on the mend, not only at home but abroad, particularly in England. There has been a slight improvement in the steel industry, in car loadings, in power production, and a marked gain in domestic consumption of raw cotton, returns for September showing larger than for September of last year, while exports of the staple continue to run well ahead of shipments to this date last season. As to the future, there seems to be a feeling of confidence in cotton circles, not of an optimistic nature, but rather of the belief that world trade will likely do better after the November election.

GOVERNMENT CROP COMPARATIVES

United States—	This season	Last Season
Acreage for harvest, estimated.....	36,611,000	40,693,000 (final)
Condition of crop, as of Oct. 1st...	54.2	69.3
Production forecast, bales of 500 lbs. gross wt.	11,425,000	17,096,000 (final)
Indicated average yield per acre, lbs.	149.3	201.2 (final)

SEASON'S INDICATED WORLD'S SUPPLY OF AMERICAN COTTON, LINT

Bales—	This season	Last season
World's carry-over, August 1st. (Hester)	12,911,000	8,710,000
Indicated crop, gov. forecast, as of October 1st.	11,425,000	17,096,000 (final)
Season's indicated supply, about..	24,336,000	25,806,000

The indicated season's supply is smaller than last season's, reports indicate the average grade to be lower than last year's, the basis has been high, and there is said to be a holding movement of no small proportions. Until of late the demand fell off some, but is picking up again, as reflected in spot sales at reporting southern markets.

CENSUS GINNING REPORT

United States— Bales—	This season	Last season
Ginned to October 1st	4,835,465	5,409,057
Ginned to September 16th.	2,636,530	2,092,758
Ginned from Sept. 16th. to October 1st...	2,198,935	3,316,299

Because of the much smaller crop than last season, ginnings in the future are likely to show a perpendicular falling off compared with ginnings after this time last season,

AS COTTON PROSPERS

call more and more on GOODYEAR

The growing popularity and use of cotton is of real interest to Goodyear. Itself one of the world's very largest users of cotton—for tires and mechanical rubber goods—Goodyear in turn offers its goods and services to meet the needs of cotton manufacturers.

Goodyear's experience in building more efficient, more economical equipment for textile mills is apparent in the special construction—and the special performance—of Goodyear Belts and Hose for cotton mill service.

Look at those two successful recent developments in Goodyear Belting—Goodyear COMPASS (Cord) Endless construction, and Goodyear THOR seamless construction. Practically stretchless, protected at the edges, capable of delivering full power throughout a long, long life of trouble-free wear, their very qualities are those most called for in textile service. Goodyear Hose for clean-up duty is another money saver.

An extra value—the PLUS that comes with the use of Goodyear Belts and Hose—is the expert service of the G.T.M.—Goodyear Technical Man. His friendly analysis of individual operating conditions—and his accurate specification of Goodyear Mechanical Rubber Goods to cotton mill duty have made money and saved money for many.

Have you ever discussed your belt and hose needs with the G.T.M.? It would pay you to do so. A line to Goodyear, Akron, Ohio, or Los Angeles, California, or to your nearest Goodyear Mechanical Rubber Goods Distributor will bring him.

THE GREATEST NAME IN RUBBER

GOODYEAR

TEXTILE BELTING

which is only natural. This change, however, is apt to be reflected in a much smaller movement to market from now on than after this date last year, which will likely make itself felt in the way of smaller port stocks compared with one year ago, perhaps to a considerable extent later in the season, and in time probably reduce the world's visible of American to less than last season, whereas it is much larger today, but increasing much slower now than at this time one year ago.

BRITISH BOARD OF TRADE REPORT FOR SEPTEMBER

Year—	1932	1931	1930
Exports of yarn, pounds....	10,000,000	9,000,000	9,000,000
Exports of cloth, yards....	177,000,000	128,000,000	143,000,000

Recently Manchester advised to effect that the British cotton industry momentarily is enjoying good times as a result of a torrent of orders released by the recent settlement of weavers strike and of the forced flood of yarn orders growing out of fears that labor troubles will put a stop to spinning. Of late India, China, and South America were reported as large buyers of cloth in Manchester. There is a definite hope in authoritative quarters there that, following the example of the weavers, the spinning difficulties may be resolved in the near future.

CENSUS CONSUMPTION REPORT FOR SEPTEMBER

United States—Bales—	This Year	Last Year
Consumption of lint, September.....	491,655	464,335
For 2 months, Aug. and Sept.	894,256	889,365
Mill Stocks September 30th.....	1,087,286	777,858
Stocks in public storage & warehouses Sept. 30th.	7,969,280	6,298,408
Stocks in mills, pub. stg. & whs. September 30th.	9,056,566	7,076,266
Active spindles during September	23,883,948	25,230,618
Active spindles during August	22,022,490	25,630,136

It is encouraging, not only to know that domestic consumption last month was much larger than for August of this year when it was only 402,601 bales of lint, but was larger than for September of last season, and to note that active spindles last month showed a marked increase and at a time when they were commencing to decrease last season. All of which speaks well for the future, so far as American consumption is concerned. Later in the season, at which time ginnings last season were heavy, stocks in public storage and warehouses, now much larger than one year ago, will likely be reduced below what they were at a later date last season, and as stated before, probably be reflected in a more favorable position of the visible supply of American.

A few weeks ago the New York Cotton Exchange Service was credited with estimating the world consumption of American lint cotton for August at 1,028,000 bales versus 940,000 for August last year, which was not a bad showing considering that domestic consumption in August was only 402,601 bales against 425,000 for August last year. This year September domestic consumption of lint was larger than for September last season—491,655 bales against 464,335. Under the circumstances it is possible that returns for September, as regards world's consumption of American last month, may make a better showing than did returns for August.

Compared with this time last season, there is consolation in knowing that the crop of this year is much smaller than last year's, that exports from the United States continue to run larger than to even date one year ago, that mill takings so far are larger than they were up to this time last season, and comfort is derived from the favorable weekly variations of late in the world's visible supply of American, which, for the past week, showed an increase of only 279,000 bales against an increase of 594,000 for the corresponding week last year. Such favorable weekly changes in the visible of American are apt to continue for sometime to come. It is 921,000 bales larger than it was one year ago, but will likely be reduced before long to below what it was last year later in the season.

The prevailing high basis in the South and the reported holding movement on the part of government agencies, farmers and other interests, has undoubtedly restricted the sales of spots in the interior and at the ports, but as the year's crop promises small, and likely to average lower in grade than last year's owing to so much rain this season, the basis may continue to rule high, in which event the trade may have to meet the terms of holders. There is evidently more reason for the high basis this season than last season when the crop was not only big but averaged high in grade. The filling of fall and winter commitments may make for some interesting developments.

Aside for ordinary business in cotton textiles, which has been good in America for many weeks past and likely to continue good for sometime to come, the needs of the Red Cross for distribution to the unemployed throughout the country, will help to increase domestic consumption. In England the cotton trade outlook is made brighter by the lifting of the boycott in India against British and foreign goods. Indications are for increased consumption of American on the Continent this season, which will probably more than offset any falling off that may occur in the Orient.

Viewing the general situation from all angles, the future, so far as cotton is concerned, looks encouraging for the remainder of the season, the materializing of which would be of much benefit to the South and the country at large; in fact it would be helpful for the whole world.

What the Southern Mills are Doing

Strickland Cotton Mills, Valdosta, Ga., have adopted group life insurance policies for their workers through the Prudential Insurance Company of America; the policies totalling $233,500 covering 205 lives. The policies are of the contributory type, the employees themselves paying part of the premiums and the company assuming the remainder of the expense.

Lanett Mill, West Point Mfg. Co., Lanett Ala., have changed five lines of pickers to single process by the A-1 method of H. & B. American Machine Co., of Pawtucket, R. I.

Tupelo Cotton Mills, Tupelo, Miss., have purchased four speeders and two pickers from the mills at Pine Bluff, Ark.

E. M. Holt Plaid Mills, Burlington, N. C., have begun installation of 102 new silk looms, for replacement.

The power plant of the Elmore Co., Spindale N. C., has been equipped with the Kennedy pulverized fuel system, by Kennedy-Van Saun Mfg. and Eng. Corp. of New York.

An expansion and improvement program of the Appleton Co., Anderson, S. C., calls for extensions to the power plant and installation of boilers, stokers and other equipment. J. E. Sirrine & Co., of Greenville, are the engineers.

LaFayette Cotton Mills, LaFayette, Ala., have been transferred to the Comer mill interests of Alabama.

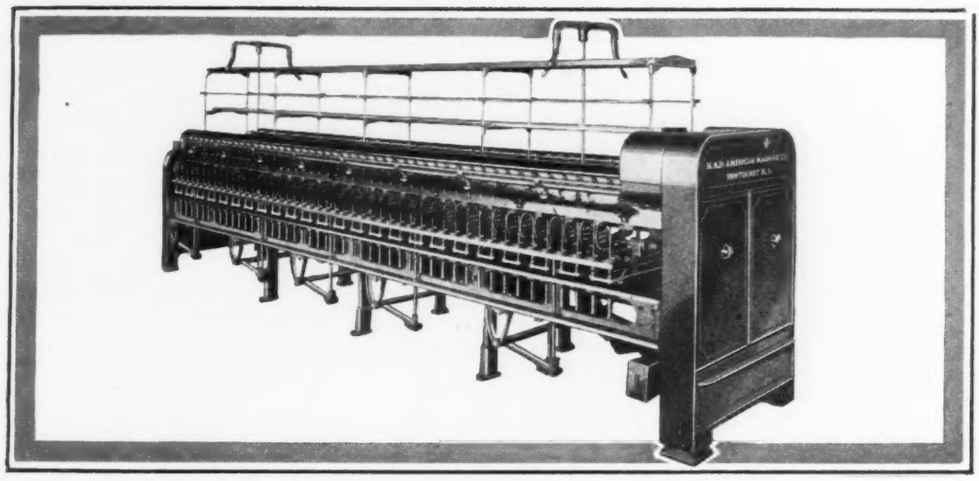
Conneaut Winding Co., Inc., has begun operations in a new building at the A. M. Smyre Mfg. Co., Gastonia, N. C., which has been leased for five years. The new concern manufactures insulating and similar materials. W. G. Banfield is manager.

Contract for the construction of an addition at the Rock Hill Printing and Finishing Co., Rock Hill, S. C., has been awarded to Gallivan Construction Co., of Greenville. A 550-hp boiler is being added and other additions are being made.

P. B. Murphy and J. R. Hudson, of Lowell, N. C., and B. N. Boyce, of Gastonia, N. C., have incorporated the Insulating Yarn Co., Charlotte, N. C., under the name of Insulating Yarns, Inc.

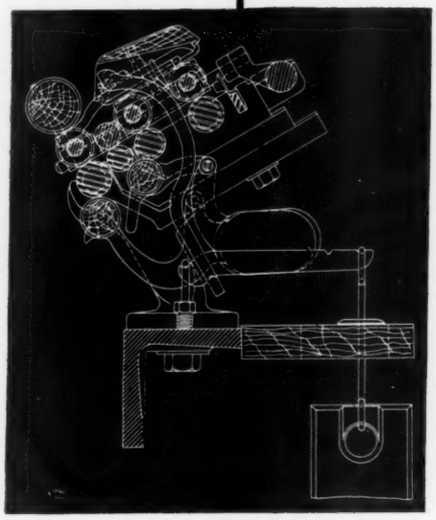
A contract was let recently by the Wiscasett Mills Co., Albemarle, N. C., to Carl E. Taylor for the re-covering of 35 additional houses in the mill building.

A new brick addition to the Loray Mill of Manville-Jenckes Co., Gastonia, N. C., has been completed and is equipped with cotton opening and mixing equipment.



H&B NEW MODEL C SPINNING FRAME
fitted with 4-ROLLER HIGH DRAFT SYSTEM

THERE are a great many systems whereby the normal draft on Ring Spinning Frames can be, on certain classes of work, profitably increased. The principal objection to most of these is the inability of the roller or apron arrangements to positively control the short fibres, thus producing excess waste in the form of light fly.



• The H & B 4-Roller System has been evolved only after a great deal of careful study and experimental work and, though very simple, it has several unique and distinctive features not embodied in any other method of drafting.

• Simplicity in the design and construction of the system and its component parts is a great consideration. It adds to the operatives' facility in handling and working machines under their care, and avoids the upkeep entailed by more elaborate systems.

• Our engineers will welcome the opportunity of going into further detail with you.

H & B AMERICAN MACHINE CO.

PAWTUCKET, RHODE ISLAND

BOSTON OFFICE
161 Devonshire Street

ATLANTA OFFICE
815 The Citizens & Southern Nat. Bank Bldg.

COTTON PREPARATORY AND SPINNING MACHINERY

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

D. A. TURNER, president, Bradley Mfg. Co., Columbus, Ga., was recently made president of the Eagle & Phenix Mills, of Columbus, succeeding W. C. BRADLEY, who has become chairman of the board.

W. S. NICHOLSON recently resigned as president of the Union-Buffalo Mills Co., Union, S. C., and is succeeded by FRED W. SYMMES, of Greenville, S. C., who is also and Piedmont Plush Mills, of Greenville. Mr. Symmes is also treasurer of the Union-Buffalo, succeeding FRANK E. WHITMAN, who is now vice-president.

FRED P. BROOKS, P. O. Box 941, Atlanta, Ga., has recently made a connection with FRED H. WHITE, sales agent, of Charlotte to handle, in the Georgia-Alabama - Tennessee territory, the products of the Abington Textile Machinery Co., including the Cook-Goldsmith card stripping system; and other lines represented by Mr. White. Mr. Brooks also represents in this territory the C. G. Sargent's Sons Corp., Graniteville, Mass., and Logemann Brothers Company, Milwaukee, Wis. He is also southern representative of Foster Machine Co., Westfield, Mass., and also represents the Reeves Pulley Co., Columbus, Ind., manufacturers of variable speed drives for spinning and twisting.

F. P. Brooks.

W. R. McELVEEN, formerly superintendent of the Southern Manufacturing Co., Athens, Ga., has become superintendent of the Adams-Swirles Cotton Mill, Macon, Ga.

J. W. McELHANNON, until recently agent of The Lowe Mfg. Co., Huntsville, Ala., and Shelbyville (Tenn.) Mills, has become superintendent of the Selma Mfg. Co. (formerly Strowd-Holcombe Mills) at Birmingham, Ala.

ROBERT R. WEST, vice-president, has been made president and treasurer of the Riverside & Dan River Cotton Mills, Danville, Va., succeeding the late JAMES I. PRITCHETT. GEORGE W. ROBERTSON, general superintendent, was made vice-president.

CLARENCE H. OCHS has become associated with Linder & Company, manufacturing chemists, 296 Beacon St., Boston, Mass. Mr. Ochs is well known to the textile mills, having been selling sizings and other chemicals to the industry for the past twenty years.

GEORGE T. METCALF has severed his connection with Franklin Process Co., Providence, R. I., as advertising and sales promotion manager, to go into the advertising business for himself. He will continue to handle Franklin Process advertising as advertising agent. Until permanent headquarters are established, Mr. Metcalf may be reached through Franklin Process Company or at his home, 217 Angell St., Providence, R. I.

FRED R. THOMAS, for 25 years general manager of Monadnock Mills, Claremont, N. H., has become general superintendent of the Bates Mill, Lewiston, Maine, where H. C. GREENLAW is agent. This change follows the recent consolidation of Monadnock and Bates organizations.

WARREN H. PEARMAN has been promoted from assistant overseer, quality control and research department, Clark Thread Co. of Georgia, Austell, Ga., to assistant overseer of carding.

J. G. CUNNINGHAM has succeeded T. C. CROWE as overseer of carding at the Griffin Mfg. Co., Griffin, Ga.

J. O. EDWARDS has accepted a position with Gossett Machine Works, Gastonia, N. C., specializing in repair work for textile machinery, as salesman. Mr. Edwards was until recently superintendent of the Rhodhiss Mills, Rhodhiss, N. C.

C. E. DAVIS has become superintendent of the Enterprise Cotton Mills, Enterprise, Ala., succeeding J. B. KNIGHT.

GEORGE SUMMERSBY, who has been executive vice-president and manager of The Spencer Corp., Spindale, N. C., has been elected president of the Bradford Dyeing Associates, and will direct the company's activities in New York. The American plant of the organization, at Bradford, R. I., is affiliated with Bradford Dyers, Ltd., of England, finishers of fine cottons, acetates, rayons, silks, woolens, etc.

M. L. MORGAN, formerly overseer of carding at the Franklin Process Spinning Co., Fingerville, S. C., has taken a similar position at the Smithfield Mills, Inc., Smithfield, N. C., succeeding G. R. RUSSELL, who is now overseer of carding at the Rex Spinning Co., Ranlo, N. C.

LEVY HILLER, formerly with the Clearwater Bleachery, Clearwater, S. C., has become superintendent of No. 2 dye plant at Lowell Bleachery South, Griffin, Ga., succeeding N. H. BAILEY, who has been transferred to the converting and sales department.

W. A. REID, formerly superintendent of the Consolidated Textile Corporation plant at Pelham, Ga., has succeeded E. L. SHERIDAN as superintendent of Cochran Cotton Mill Co., Cochran, Ga.

HOWARD R. HART has resigned as superintendent of the Durham Cotton Manufacturing Co., Durham, N. C., to become superintendent of the Aiken Mills, Bath, S. C. Mr. Hart has been succeeded at Durham by HAROLD A. DEAL, formerly of Randleman, N. C.

W. R. ESTRIDGE has been promoted to superintendent at Carolina Textile Corp., Hamer (S. C.) plant.

"EVERY KNOT A WEAVER'S KNOT"

DEPRESSION
BRINGS OUT REAL VALUES

Forehanded Mills Continue to Purchase
Barber-Colman Spoolers and Warpers

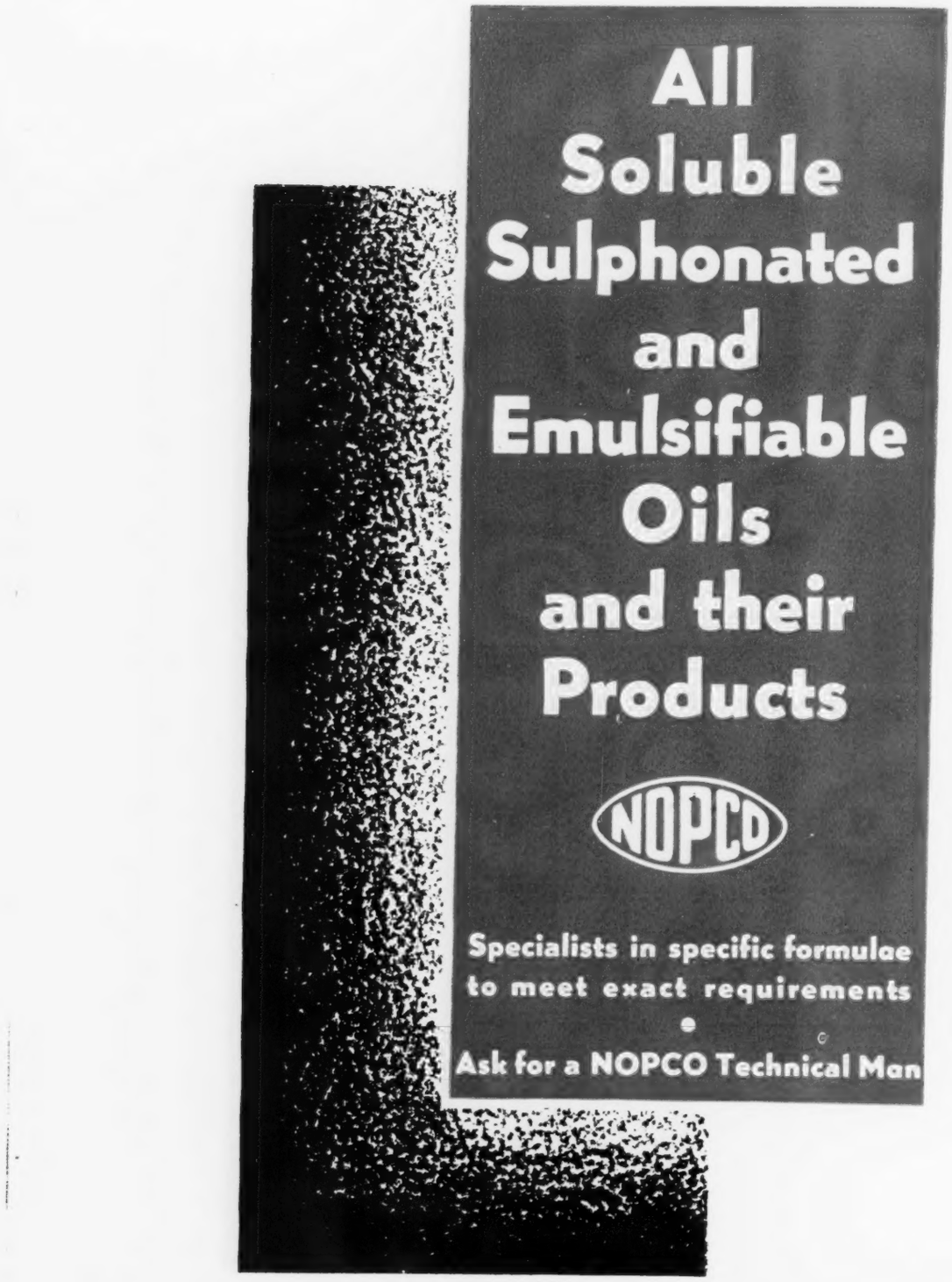
The absolute necessity of reducing costs has caused mill managers to scrutinize all purchases as never before.

FIFTY-TWO THOUSAND

old style spooler spindles and corresponding warpers have been replaced by Barber-Colman spoolers and warpers during the last three years of depression. **Approximately one-half of this replacement has been made in the past twelve months.**

The real worth of Barber-Colman spoolers and warpers has again been demonstrated.

BARBER-COLMAN COMPANY
General Offices and Plant, ROCKFORD, ILL., U. S. A.
FRAMINGHAM, MASS. GREENVILLE, S. C.


All
Soluble
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Specialists in specific formulae
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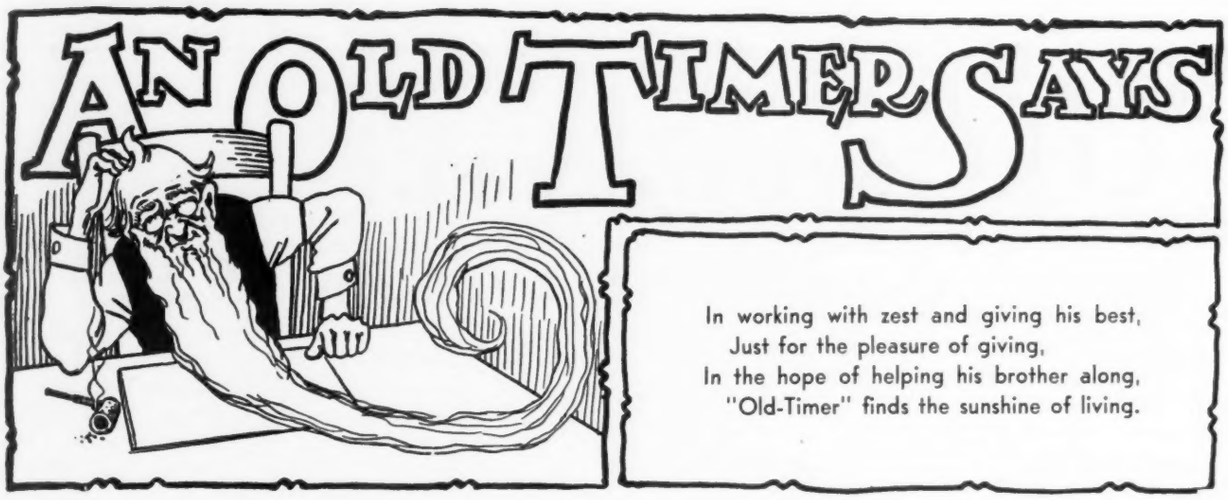

AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

A Broken Rib Lets in Light

ONCE more we interrupt Old-Timer's series on his methods of working and management, to present the following account of Old-Timer taking some of his own medicine. As usual, however, he tells the story in such a way that you will get some good from it—provided you will consider that he is talking to you. If you wil do this, will you please write him that you did so?

The eighth installment of "The Story of Old-Timer's Methods of Working and Management" will appear in the December issue . . . . . .

(Note: Since this article is written in conversational style, it should be borne in mind that those paragraphs in regular type represent OLD-TIMER's part of the conversation, and those in *italics* are JIM's part.)

Well, for the love of Mike, OLD-TIMER, *what are you doing? This is the first time that I have ever seen you doing absolutely* nothing.

Doing *nothing*, is right, JIM, and it *is* my first experience. Strange, isn't it, that I have lived all these years and this is really the first time, as far back as I can remember, that I am absolutely lost, so to speak; that is, nothing to do.

What do you mean, nothing to do, OLD-TIMER?

Well, here is the explanation, JIM: I had the misfortune to fall and break a rib, a few days ago, and that of course has fixed me where I can't play golf or tennis like I usually do over the week-end, and this is the first time in my life that I have had the opportunity to realize just how much that week-end pleasure has meant to me. That is why you found me, this morning, sitting here at the club with *nothing* to do.

But, OLD-TIMER, *it seems to me this would give you a wonderful opportunity to catch up on your reading. I noticed in one of your recent articles you told us that you were reading the life of Bismarck.*

Sure, JIM, and I haven't finished that book yet; in fact, here it is. I have it with me and thought I would finish it today, but, strange to say, I can't, to save my life, get interested in it. In endeavoring to analyze my inability to get interested in reading something which ordinarily I am trying to find time to read I can only explain it this way, which will show what strange creatures we human beings are after all, and how prone we are to be influenced by circumstances.

As I said, I am usually seeking the opportunity to read such things as the life of Bismarck or other kinds of constructive literature. You know, JIM, my time is fairly well taken up with trying to run my job in a mill, and it usually takes up about twelve hours of the day. Then, I devote about two nights a week to the work on COTTON in connection with the study courses which the magazine is giving to the readers, the regular OLD-TIMER articles and so on, and with the usually considerable correspondence pertaining to the various phases of our work, you can see that my time is fairly well taken up and there is very little time left for reading just for recreation.

Therefore, your question, JIM, is hard to answer. It really brings out one side of human nature which shows how important it is that a man should be "Master of Himself".

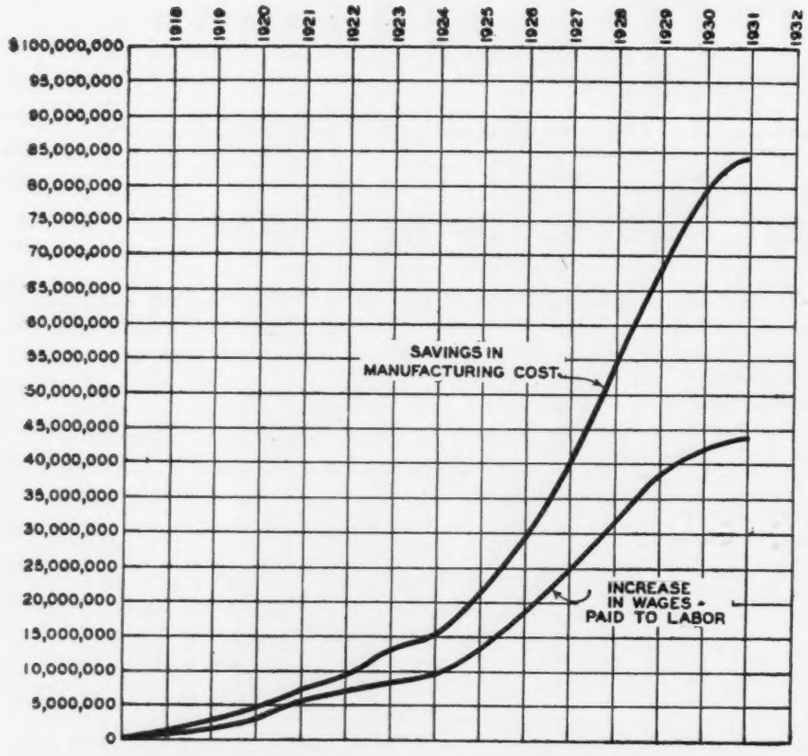
Remember that article, JIM? Gosh! I worked about two months trying to prepare it for my readers, hoping that it would be the *re-making*, so to speak, of some overseer or superintendent who would read it, and now, I find that it applies to *me* more than I really thought it did.

In fact, I have prided myself—guess I have bragged about it some to my editor—that I really was "Master of Myself"; that I really could say *yes* to the article "Do You Know Yourself"? but,—honest confession—you caught me this morning as I was having a new experience, when I could not have honestly said *"I am really master of myself"*. The very fact that I could not get really interested in reading Bismarck when I had the best opportunity I have had in a long time, shows that I am not 100 per cent "Master of Myself". About the only way I can explain it is, that a human being must practically always put forth an effort in order to enjoy anything.

THE BEDAUX PRINCIPLE DEALS WITH THE HUMAN ELEMENT ALONE

Up every year-

Bedaux gains even in 1932



This year—as in the past twelve years—Bedaux continues steadily upward in savings in manufacturing costs and increased wages paid employees. The Bedaux Principle of Labor Measurement is a system that pays, and pays consistently as long as the plant is running—because the B-Unit is a fixed measurement of human endeavor.

So effective is this system that the first cost is usually absorbed in less than a year's time.

Scores of manufacturers—a large percentage of which are textile mills—are saving thousands of dollars annually by installing this simple principle in their mills. During the last twelve years over $80,000,000 have been saved in manufacturing costs—while over $45,000,000 have been paid to employees in increased wages.

Plant alterations and new equipment at NOT REQUIRED to establish BEDAUX in your plant.

Consultation is invited. You will find much information in the booklet, "BEDAUX MEASURES LABOR." It will be sent you without cost. Also write for list of clients.

THE CHAS. E. BEDAUX COMPANY

OF NEW YORK, INC.

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J. J. SKELLY, Gen. Mgr.
22 East 40th Street
New York City

H. B. CRAFT, Vice President
in charge of Southern Operations
30 Camden Road, Atlanta, Ga.

Here I am, tied up with a broken rib which keeps me from playing golf or tennis or going swimming—the things which I usually do week-ends—then, when I selected several books which I knew I *should* read, and thought I was going to fill in the time to the very best advantage, came out to the club, as usual, selected a nice cool place, got out my books and started to read, I began to realize, after reading an hour or so that I was not absorbing what I was reading; that is, I was not reading in a way to make me remember it. (This is one thing that I have fussed at my readers so much about). I finally laid the book down and was trying to pull myself together when you walked up and found me doing absolutely nothing.

No doubt the editor is going to wonder why in heck I am writing all this bunk, and whether or not he can allow me space for it, but really, I feel that there is a lesson in it for my readers as well as for myself, personally, and it is this:

I *did* fall for the weakness in human nature.

I *did* find myself doing the very thing that I have been preaching to my readers all these years that they should not do.

But the important thing is, I *did* catch myself. I did realize that I was not taking advantage of an opportunity in which to improve myself by constructive reading. Therefore, all of the training which I have tried to give myself *did* bring results. I did see that I was losing some valuable time. I did put on the brakes and pull myself together before I lost all that valuable time. Now, I am stronger than I was before. I caught myself slipping and actually did stop.

I stopped! So many of us *know* that we are not using our valuable time to the best advantage, but we continue to drift with the tide of least resistance. We haven't the will power to *stop*. This, then, is the point I wanted to give my readers, out of my own personal experience. You know that all of OLD-TIMER'S articles have been based on personal experiences, and as this was a personal experience I have taken the position that it is just as applicable to the OLD-TIMER page as were some of the others which have been published. That is my argument to the editor, to persuade him to publish it.

Brother, if you are sufficiently "Master of Yourself" to *stop* when you find yourself slipping, I still claim that you are far above the average man.

If the average overseer or superintendent would only catch himself when he knows he is not running his job like it should be run; when he knows that other mills on the same class of work are doing better than he is doing—well, all I can say is, if he *would*, there would be a darn sight fewer notices in the textile magazines stating that such-and-such an overseer or superintendent has "resigned".

Watch OLD-TIMER'S prediction, fellows. We are in about the worst depression I have ever experienced. There are about ten overseers and superintendents to every job, but, just as sure as death and taxes, this is the time that overseers and superintendents will make their reputations. Now is the opportunity for the good man to advertise himself by producing goods for his firm, for less than his competitors are producing them. The only mills which can run in these times are the mills which can produce goods that can be sold for what the market is offering for them. Statistics show that a fairly good volume of output is being sold, and it is probably a fact that some mills are selling goods for less than the cost of their manufacture in order to hold their organizations together, but these mills cannot continue to do that. Therefore, it is up to us fellows to work every scheme we possibly can in order to find ways to produce more goods or pounds per operative; to do everything in our power to produce goods at a price at which our firms can sell them. The man who can do this is the man whose reputation will be made, who will hold his job now, and in the future.

I am going to "ring off" now, fellows, and put in the balance of my time this week-end in constructive reading. I have learned a lesson from this little experience, even if I did have to break a rib to do it.

Will you profit by OLD-TIMER'S experience? Will you try to do what he has done today; realize when you are getting off the track and put on the brakes before it is too late?

You know when you are slipping, Mr. Overseer and Mr. Superintendent. Now are you man enough to *stop?*

New Equipment Added to Textile School at Georgia Tech

Charles A. Jones, recently appointed director of The A. French Textile School of the Georgia School of Technology, Atlanta, Ga., has announced the installation of a number of pieces of additional equipment in the school.

The Draper Corporation has recently installed at the school one of the new Model X high speed automatic looms; this loom is equipped with individual motor drive, Waltham pick counter, and embodies new and improved features, including a larger yarn beam, larger shuttles, and larger space for cloth rolls before doffing. The loom at present is operating on print cloth.

In the yarn manufacturing department, one complete Saco-Lowell long draft spinning unit has been installed and is now in operation. This unit is also equipped with an individual motor and a Rockwood drive.

Mr. Jones, who is now director of the school, was graduated from Georgia Tech, with the degree of B. S. in Textile Engineering, in 1904, following which he did general work in the mills of the section. He returned to Tech in 1906 as an instructor in the department of dyeing and bleaching, and was assistant instructor in weaving and fabric design. For several years during this period, mill and laboratory practice were combined with instruction work in the school during the time intervening between the school sessions.

Later, Mr. Jones was put in charge of the department of textile chemistry and dyeing, together with that of fabric design. During the last few years his duties have been chiefly in textile chemistry and dyeing, and in conjunction with the development of the newly created courses in rayon practice and textile testing.

For Lasting Bearing Economy and Less Shut-Down Expense

Easy to install and maintain, Moccasin Oil Distributing Bushings are today the only type that are successfully replacing ball and roller bearings where speed and heavy duty are factors. Made only of the purest metals into a bronze possessing great anti-frictional properties—yet tough enough for years of wear.

BRASS AND BRONZE CASTINGS OF EVERY DESCRIPTION

Write for Descriptive Literature

MOCCASIN BUSHING COMPANY CHATTANOOGA, TENN.

CLINTON STARCHES

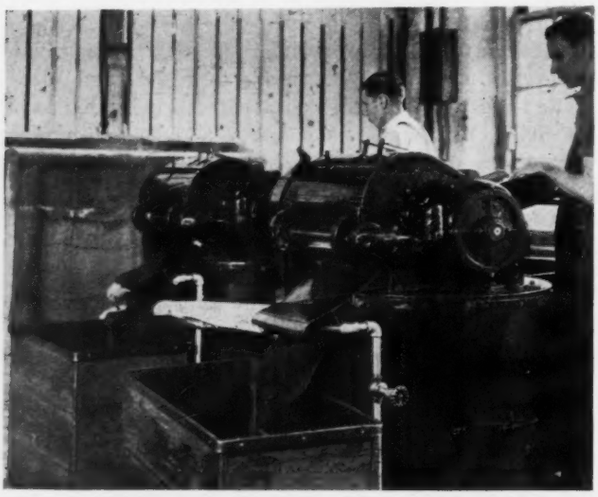
FOR ALL TEXTILE PURPOSES

Manufactured by

CLINTON CORN SYRUP REFINING COMPANY

CLINTON, IOWA

QUALITY SERVICE



Why Riverside and Dan River Mills use

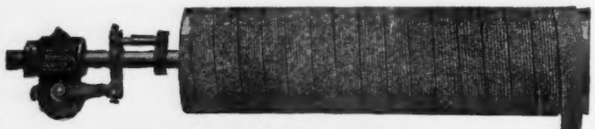
6 Termaco Machines

Here, in this mill, it is found that Termaco Roving Bobbin Cleaners accomplish: 1. A reduction in waste. 2. Elimination of additional reworking of waste. 3. Elimination of bobbin injury by cutting. 4. Improvement of splintered bobbins. 5. Elimination of singlings in yarn. 6. Give spinners time to do more work.

THE TERRELL MACHINE CO., INC., Charlotte, N. C.

General Supply Co., Danielson, Conn., representatives for N. Y., N. J., Pa., New England States and Canada.

Geo. Thomas & Co., Ltd., Manchester, England, Agents for Great Britain and Continental Europe.



DRONSFIELD'S PATENT

"ATLAS BRAND"

EMERY FILLETING

"The New Flexible" "Needs No 'Damping'"

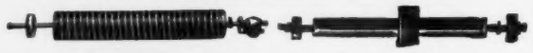
Stocks in Boston, Mass., and the South

TRADE MARK

The Standard Card-Grinding Medium

GUARANTEED "A" QUALITY
THE ONLY QUALITY WE MAKE

Used the wide world over, like
The DRONSFIELD CARD-GRINDERS



Stocked by the *Principal Mill Supply Houses*

Sole Agents for Dronsfield's Machinery for U. S. A.:—
John Hetherington & Sons, Inc.
250 Devonshire St.
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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

Reply on Subject of Using Only Male Help on Night Shift.

EDITOR COTTON:

I see by his letter on page 57 of the September issue of COTTON that "CONTRIBUTOR NO. 6136" seems to be a little mystified over some statements in my previous article (page 74, June, 1932, issue) with regard to running the night shift in a mill with male help only. I gather from his letter that he is not familiar with the prevailing conditions in the southern mills, and will try to explain those that seem to puzzle him.

In the first place, he states that the mill with which he was connected decided to run with no female help at night but could not find enough male help, so the idea was given up.

Our mill got orders from the main office to have all of the women off of the night shift by March 1st, 1930. It was not the idea to try it, but to run with male help or not at all, as the management had agreed to use no female help at night. We are situated in a small town of less than 5,000 population, with another mill also located here. I have been here over eleven years, and we have never yet been short handed.

As soon as orders to use only male help at night were received, small groups of men or rather boys were hired and trained. As soon as their training was completed they were put on regular jobs, spinning, spooling, warping, etc. Then another group was hired and worked up in the same way. By the first of March, all of the women had been replaced, and there have been no women at work at night in this plant since.

Of course, I will agree with "CONTRIBUTOR NO. 6136" that it does not take so many to run the spinning and spooling. He speaks of replacing weavers; we never had but a very few women weavers even in the day time. And there have been very few women speeder tenders here, day or night. I cannot recall over two women who worked in the card room at night, and out of 19 frame hands on the day shift, only two are women. Both of them have been with the company for a long time; but if they ever leave their places will be filled by men.

"CONTRIBUTOR NO. 6136" also wonders if the day overseer is the night overseer. He is. And if running the spinning room with a second hand causes him to wonder, consider the card room. Only a part of the frames and slubbers run at night—no cards or drawing—and the department is run by a section man, not a second hand, who is in complete charge of everything that is running. He gets his orders as to what to run from the day overseers and places his own help. He keeps his own time, does his own fixing and is generally "chief cook and bottle washer." We use the multiple system here. We do not, however, work for as hard boiled an organization as you might think. Of course orders are orders and they expect results, not excuses, but that is only good business. I do not want a job with an organization that will accept excuses, because too many could get by at the expense of the other fellow and it might fall to my lot to be the other fellow sometime.

Your contributor in September also states that if he were overseer, he would not have a bunch of green boys beat him on production, waste, and maybe cost. I don't say that he could not prevent this from happening, but he would surely have to step some to do it. In regard to these green boys, they were green when they were hired, but as I have stated, they have been on the job over two years and certainly should qualify as experienced operatives now. We still have the original lineup almost intact. I should have made this more definite in my first letter.

Now as to cost, of course the overhauling is done on the day shift. But outside of that, there is no work left over from the night shift. All repairs are made at night the same as day, all cleaning up done the same as day, and the over-the-week-end clean-up is done at night; also all tangled yarn from both the night shift and day shift is straightened up at night.

We are not bothered with a "slowing-down" period from three to six o'clock in the morning. We start at 5 P. M. and stop at 3:40 A. M., taking 40 minutes from 10:20 until 11:00 o'clock for lunch. This is probably to our advantage.

Now, it is no trick at all not to make any roving waste. It is just as simple as *a b c*. All you have to do is to let the bobbin run empty in the frame before it is allowed to be taken out. That eliminates the roving waste entirely, also cleaning roving bobbins. If that seems like some trick, how about the card room running from 1.00 to 2.60 hank-roving and making no roving waste? Of course we allow the frame hands to wind back the roving, but none is put in the waste; that is, not if you want to hold a job here. I think

◆ ◆

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

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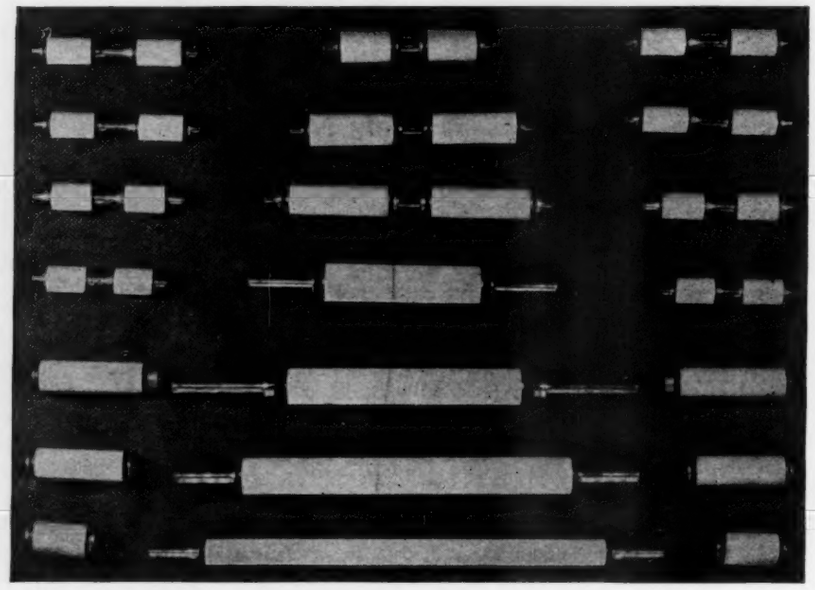

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that is more of an achievement than eliminating the roving waste made in the spinning room.

This leaves all the waste that is made to come from ends down. You will find by experience if you ever have the opportunity, that boys stay with their jobs better than the girls and women, and therefore have fewer ball-ups. That is, less waste runs around the lap-stick before the boys get to the trouble. Also, if a boy lays down on his job you can "walk his log" and he will either quit or stay with his job; while if you get after a woman she will immediately tell you So-and-so does the same thing or worse and that she considers herself just as good as So-and-so, and to get on the other one first.

From our experience here, I would rather have men and boys than woman at any time, day or night.

If there are any other points that "CONTRIBUTOR No. 6136" does not understand about my first contribution in the June issue, I will be more than glad to explain to the best of my ability.

CONTRIBUTOR No. 6086.

Just Who is "The Boss."

EDITOR COTTON:

Oftentimes we hear people refer to someone as "the boss", meaning of course, the one to whom they look for instructions or to whom they are supposed to render service for a monetary return. Sometimes a married man refers to his better-half as "the boss" in a spirit of jest, or perhaps seriously, possibly because she objects to his spending too much of his time away from home and the kiddies during his leisure hours. However, the boss is the one who has authority over us—the one whom we are serving for a monetary wage or otherwise.

Every man engaged in any kind of business or gainful occupation—whether he be owner, manager, superintendent, overseer or what not—has a boss. Some person to whom we feel we are duty bound to serve, at least in a business way.

Who then is "our boss"? Is it the overseer, the second hand, the superintendent, or the manager? All of these are, of course, leaders, bosses so to speak and occupy an important place in the operation of the plant. And if we are the kind of men we should be, we will do our best to carry out their instructions and do the things which are most profitable to our employers.

However, the overseer, the superintendent or general manager is not the real boss, but the representative of the big boss—the men who buy our products, the purchasers of the goods we manufacture.

Therefore, the duty of every man, from laborer to general manager, is to do his or her dead level best to manufacture goods that will satisfy the customer, and meet his requirements.

The men who buy our products specify the kind of goods they want. They are willing to pay the price, and it is up to us to deliver the goods according to specifications.

Remember, if we please the big bosses—our customers, the men who buy our products—a continuous operation of the plant is assured and we all

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profit. However, when we fail to deliver the goods according to specifications, the result is not only a financial loss in having to dispose of the inferior product at a greatly reduced price, but the reputation of the company has been injured and the sales department finds it difficult to dispose of the goods.

So, we must realize, that the product of our plants is the sum total of the character of the personnel of our organization. That is, a looking glass through which others see us and judge us, and by which our reputation is established. Therefore, every employee is helping to establish the mill's reputation. A don't-care spirit is a liability. The fellow who cares, does his best to produce goods which will please the customer, is an asset and the kind of an employee that every company wants.

CONTRIBUTOR NO. 6158.

Warp Preparation and Spinning Economies

PART FOUR OF "LEARNING THE MILL GAME".

"Young-Timer" tells here of some practical points that save money in spinning; and discusses further his automatic spoolers and super-speed warpers.

EDITOR COTTON:

In the third article of this series, (published on page 97 of the October issue) I gave some information or rather some of our experiences with our new Barber-Colman high speed spoolers and warpers. There are a few more experiences I want to describe before I get off onto another subject.

First, let me give the machinery layout of a large warp preparation department. We have six high speed spoolers and four super-speed warpers, which replaced 32 old style spoolers and 44 old type warpers. On the old type machines we had about 64 spooler hands and 4 warper tenders; on the new machines we have 18 spooler hands and 2 warper tenders. With an increase of about $1.00 per week in the average earning of the operatives, we have been able to effect a decrease of approximately 68 per cent in the payroll. This does not consider creel hands, oilers, beam man, sweepers, tangle hands, etc., but it will give an approximate figure upon which to base an estimate for pay-roll reduction.

The warp preparation room is not the only department that shows a saving from this new equipment. The weave room saving is practically the same in dollars and cents. This is, you should get as many dollars off of weave room total payroll as off of the warp preparation room payroll. This is brought about by less loom stops, making it possible to give more looms per weaver.

Now, for those experiments I started to tell about. We find it very necessary to try to get the same amount of yarn on every bobbin. Why? Suppose you are running the spoolers on 28½s yarn and some of the spinning frames run five hours and fifteen minutes per doff, and some are running five hours and 30 minutes; then suppose this yarn gets mixed before going to the spooler. What will happen? If the traveler on the spooler is set for the yarn that has run five hours and fifteen minutes on the spinning frame, and if the yarn is mixed, the traveler will run into the ends that ran five hours and thirty minutes in the spinning frame and throw them out before all of the yarn is run completely off of the bobbin, thus running the "tailings" up, and at the same time increasing the spooling cost. Also, as you can see, if the traveler is set for the yarn that has run five hours and thirty minutes, it will not be possible to get the production possible because the shorter doff will run out sooner and there will be a lot of ends waiting too long on the traveler.

All frames should be doffed at the same time on the same numbers, and this will reduce the "tailings" and the production on the spoolers will be higher.

We try to keep our spooler hands from dropping any loose thread in the yarn trays because if they do these threads will get on the yarn in the trays and run off of the bobbin onto the cheese and when the cheese is put in the warper and is being run off, every time one of these pieces of wild yarn comes up it will usually cause a stop on the warper, and this of course lowers the production on the warper.

The Importance of Humidity

We make every effort not to neglect the humidity. Like every other department, a warp preparation room will need correct humidity. Too much humidity will cause a lot of trouble and loss of production on both the spoolers and warpers.

Too much moisture in the room will cause the knotter on the spoolers to stick up and not tie the ends. When this happens, it is necessary to take the knotter out of the traveler and put in a clean one, and this lowers production. Also, too much moisture in the room will cause the drop wires or thread wires on the warpers to stick up, causing bad work on the warpers and possibly in the weave room.

On the other hand, not enough humidity will cause the work to run badly. In other words, the yarn will have a tendency to dry out and break more easily. I cannot recommend just what humidity should be kept in the warp preparation room because local conditions will change at each mill.

Say, speaking of humidity, let me tell you of an experience a mill had in their spinning room. They had what was supposed to be the correct amount of humidifiers in a warp spinning room of 60,000 spindles, but always during the summer months they had an awfully hard time making the spinning run well.

Finally, the management was persuaded to buy enough atomizer heads to almost double the present system. One day about the latter part of February, it was very windy and awfully hot, which made it necessary to keep most of the windows open to prevent the room from getting too hot, and consequently the work was running badly.

At about eleven o'clock that day, the man installing the system of humidifiers said he was ready to start them up and he was immediately informed to give it all he had. He had placed an atomizer head at every window and also had a line running down the center of the room.

The new system was started at once and within

30 minutes the spinning had improved 50 per cent or more and the temperature of the room was at least four to five degrees cooler. This additional humidity allowed them to open all of the windows which also helped to cool the room more but did not affect the running of the work, although as stated, the weather was very windy.

Stating it all briefly: here are the advantages the mill received by installing this additional humidity. With the same staple of cotton they were able to increase the front roll speed from 121 r.p.m. to 124 r.p.m., and with this added speed the work ran better and the breaking strength is from three to four pounds better. All this goes to show that it is always a very good idea to keep an accurate check on the humidity.

The Clutch Type Spindle

Since I am back in the spinning room, I want to tell you how a certain mill I know of was able to increase their production and also lower the spinning cost at a very low expense to the mill. It may give someone an idea. The management bought some spindles, which were a trifle larger and heavier than the spindles they were using on a filling spinning frame. These were secured from a second hand dealer.

These spindles were sent to a machinery manufacturer and a clutch put on for about 40 cents each. Then the mill put these spindles in the frames in place of the old spindles which did not have the clutch. This allowed them to speed up the front roll about 12 per cent which of course gave quite an increase in production, on 284 frames. Of course this made a nice reduction in spinning cost although the spinner is paid by the hank in this mill and her pay was increased accordingly, but the reduction in cost was effected by the increase in pounds to be divided into the overhead, such as section men, oilers, and all of the other hour help.

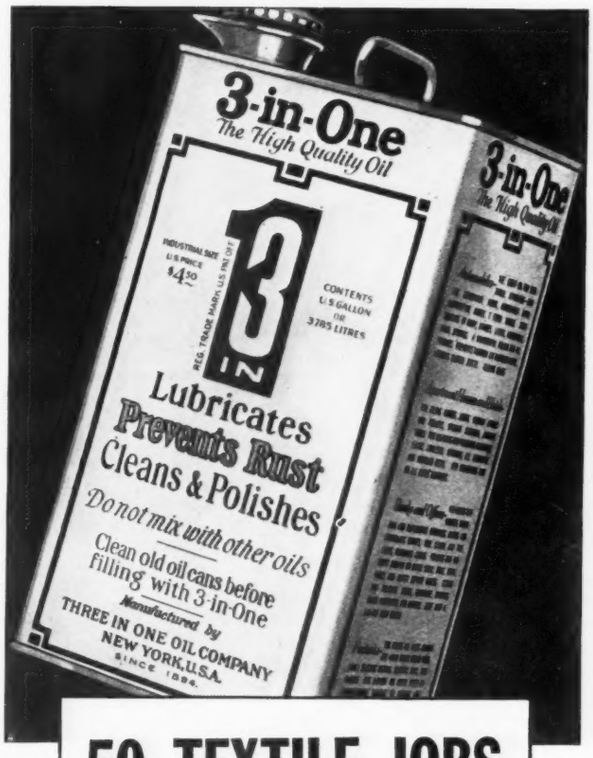
The reason they were able to speed up was because with the clutch spindle they could run the spindle at a faster speed and the bobbin would not jump up as it would on a spindle without the clutch; and, as you know, when the bobbins jump up on the spindle it causes bad work which the weave room will not have.

Just at the particular time this increase in production came in very handily because the mill was putting in additional looms and would have had to buy more spinning if it had not been for the increase in production as outlined.

Removes Cloth from Middle Spinning Roll

Here is another idea that may be of some value to the reader. A certain mill was running on a 7.00-hank roving making 45s and by a simple and inexpensive arrangement changed to a 6.00-hank roving. Strange to say, the 6.00-hank roving gave less ends down in the spinning and of course a much lower cost in the card room.

I will outline the method: First, they bought some one-piece saddles which cost six cents second-hand or eleven cents new. Then they took teh wool covering off of the middle roll and merely covered the roll with



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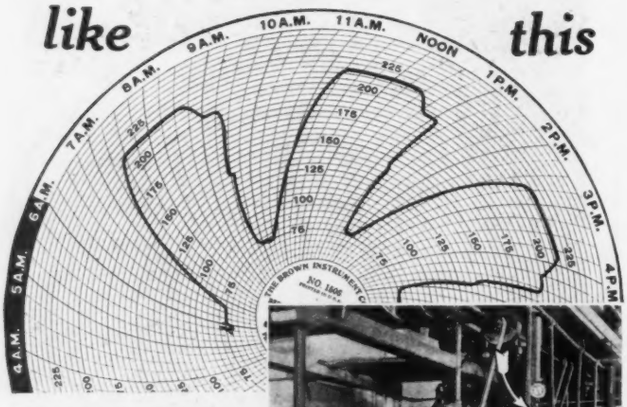

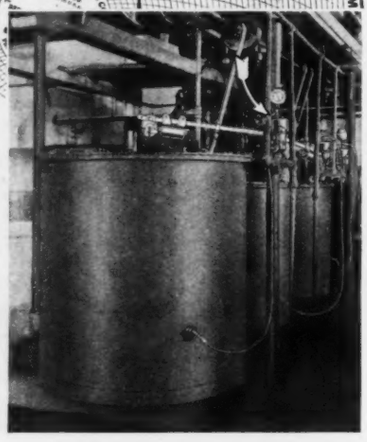

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sheep skin. This was done to decrease the middle roll just enough in diameter so that it would not touch the cloth on the top clearer. They found if the middle roll did touch the top clearer, that the cloth would act as a brake and would not allow the roll to turn as freely as it should because the roll is unweighted and the least bit of friction will keep it from turning, causing the roving to run out at the sides of the roller. Third, if I am not mistaken, they changed the break draft two teeth. Of course you would have to work that out to suit your local conditions. This change has been a great help, and I would suggest someone trying it on a few frames, unless of course you have something better.

The total cost of this change was six cents each for second-hand saddles or eleven cents each if bought new. Then of course it is necessary to change the crown gear in order to get the increased draft, because the draft gear to draw about fifteen would be so small it would break or would not work for other reasons. The new crown gears would be the biggest cost.

(To be continued)

YOUNG TIMER.

A Handy Method of Drilling Holes in Card Comb Boxes.

EDITOR COTTON:

I know from personal experience that although it is routine practice in most mills to clean out all of the old oil in the comb boxes of cards once if not twice a year, it is a practice that is greatly disliked by the card grinders and one they skip whenever possible. At the same time nearly every grinder will agree that it is a very necessary and important part of the upkeep of the card.

We have had a system or method worked out for us that eliminates most of the objectionable features of this job and allows us to clean out and renew the oil in all of our comb boxes in one day. It removes the necessity of removing the box or of stopping the card except long enough to check the setting of the comb.

In all of our comb boxes, a hole is drilled, as at *A* and *B*, Fig. 1, for the insertion of a tapered plug, *C*. This hole enters the box at the very bottom, and

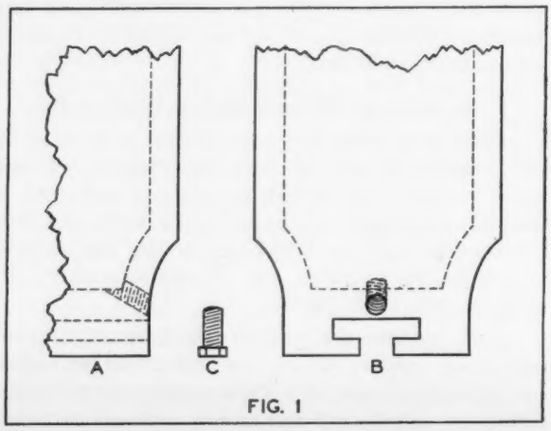

FIG. 1

you can easily see that by removing the plug and holding a bucket under the hole all of the old oil will drain out. A small quantity of kerosene is then run through the box, after which the plug is replaced and the box is ready for new oil. We us a 3/8-inch tapered brass plug to prevent sticking or rusting in the hole. A larger plug could be used but I would not recommend a smaller one.

I had the job of installing these plugs on over 200 cards, and soon found out that it was a "pain" to hold the electric drill in my hands and do the work. It was just a little too low to stand up and do, and just about the same amount too high to sit down and do. Squatting down soon grows old to anyone, so I thought then of what our master me-

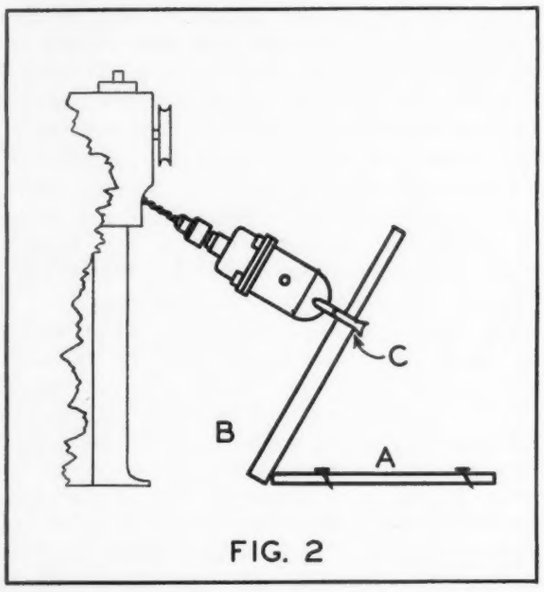

FIG. 2

chanic has told me many times, that "the easiest way to do anything and *do it right* is the best way," so I got up the plan shown in Fig. 2, and find that it works to perfection.

In this drawing, *A* is a short piece of plank—most any scrap of 1-inch material will do. Near each end I drove a nail through it at a sharp angle, and cut off the ends of the nails so as to leave about 3/16-inch projecting on the underside and sharpened this end with a file. This gives a base to hold against that will not slide, as one foot will naturally rest on it when using the drill. *B* is a length of 2x4 about two and a half or three feet long. To make it, get someone to hold the drill in position to bore the hole. Place *A* in position and then *B*, then make a mark at *C*, just where the handle of the drill will come. Then cut a shoulder on *B* at *C*, and trim away from the shoulder up, so that the handle of the drill will slip easily over it. Smooth up the upper end into a handle, and you are ready to bore more and better holes and do it easily. The angle of the hole can be changed by moving block *A* closer to or further from the card. It is well to keep a close check on this or some of the holes may come through too high in the box so that all of the oil will not drain out.

CONTRIBUTOR No. 6154.

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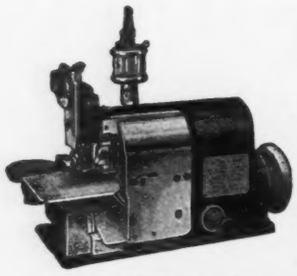

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Handling Piece Goods in the Bleachery.

EDITOR COTTON:

I would like to give in this letter a few comments on the handling of cotton piece goods in the bleachery, beginning at the receiving room, or gray warehouse as it is commonly called.

After leaving the weaving mill, the cloth is sent to the bleachery or dye works. Here it may have to be stored indefinitely awaiting instructions from the owner as to finish, put-up, shipping instructions, etc. When this is the case, the pieces should be checked and a few examined for quality; in some instances the customer may request the bleachery to inspect all of his goods, for which service the bleachery will charge a small amount for the work of re-inspecting. The bleacher must exercise great care during the storage period in the warehouse, as frequently mildew will develop due to improper storage and may not be discovered until the goods are put in process.

The goods are removed from the bales or unwound from the rolls as soon as finishing instructions are received. In order that the lot may be followed all the way through the plant each piece is stamped at each end about four inches from the end to allow for sewing of the ends together.

After stamping, the ends of the pieces are evenly and securely fastened together in order to avoid trouble in the various machines. All face goods should be sewn one way, that is, goods such as satins, drills and twills, otherwise there will be trouble in later processes and time lost in re-sewing. On sheetings this is not so important unless the goods are only being singed on one side for a special reason, as in the case of back-filled goods.

From the sewing room, the goods are stacked on trucks and brought to the singeing room where they are passed over the singeing machine, where all of the short fibers and trash common in gray goods are removed. Great care should be exercised to keep an even flame all the way across the burner, otherwise the goods are likely to suffer untold damage in the form of scorched or tender goods due to over singeing or the presence of chloride of magnesium in the goods, in which case the writer feels that no blame should attach to the bleacher, but rather to the gray mill for using the material and failing to inform the bleachery of its presence in the goods.

After singeing, the goods are ready for bleaching. The cloth is first wet out in hot water by passing through a washer. At this point it is changed from open to rope form and piled up for 10 or 12 hours in order to allow the size put in the warp at the gray mill to decompose. After the starchy matter has fermented the goods are given two good washes in order to eliminate kier stains as far as possible. From this point the goods are piled evenly into the bleaching kier and treated as follows: Boil under pressure for 8 hours in a solution of caustic soda and a small quantity of oil or resin soap; for the average quality of cloth a solution of caustic soda at 2½ to three degrees Tw. for every 100 pounds of material, and one quart of oil or ½ pound of soap.

After boiling, the goods are allowed to steep in

the liquor for two or three hours, care being taken that the kier is properly filled with boiling water to cover the cloth, as any portion of the material left uncovered would become dry and stains would probably develop with the possibility of tender goods in spots.

After steeping the time as already stated the cloth is well washed; it is then soured with hydrochloride acid, washed and again boiled for 8 hours in a solution of caustic about two degrees Tw. After boiling the cloth the second time it is again permitted to steep as before, then washed, and finally treated with bleaching liquor at one degree Tw. The cloth should lie in the liquor for approximately three hours, care being taken that none of the cloth on top becomes dry.

After chemicking, the material is again washed and soured with sulphuric acid 2 degrees twaddle, and allowed to lie as previously described. Again it is well washed, care being taken this time to see that no free acid is allowed to remain in the goods. After washing the goods are ready to be scutched, that is, changed from rope form to open width, and passed through the water mangle and on to the dry cans. The goods at this stage are either doffed in rolls or plaited in boxes, whichever is the most suitable.

Again the goods reach the warehouse, but this time it is the white warehouse, where each lot is checked in order to find out if the entire lot has come through the bleachery. From the white warehouse the goods are distributed to the various departments for processing, such as dyehouse, printing department, or starch room, then on to the calender room and finally to the cloth room and packing department where they are checked and put up according to customers' specifications and cased, and put into the finished goods warehouse to await final shipping instructions.

CONTRIBUTOR NO. 6159.

Disapproves of Boiling Slasher Cloth With Soap.

Is it good practice to boil a slasher cloth at intervals with soap? This question is asked occasionally, and in connection with it, the following reply to it, furnished by Paul Seydel, president, Seydel-Woolley Company, Atlanta, Ga., manufacturers of textile chemicals is of interest:

"Of course, we do not approve of boiling slasher cloth out with soap. Soap ionizes at boiling temperature, liberating sufficient alkali to completely ruin wool if boiling is prolonged.

"We do not find it advisable at all to remove a blanket from the roll. If it is necessary to clean it, this can be done right on the roll with a hose. The mere removal of the blanket from the roll is harmful.

"We find it good practice to use sufficient yardage of blanket so that a piece can be cut from time to time without removing the whole cloth.

"Even though the cloth may appear stiff, after

MEMPHIS

IF you would taste the full, piquant flavor of the deep South, see Memphis! The turgid Mississippi there swirls past the bluff from which DeSoto first glimpsed it. Black roustabouts still tell tall tales of legendary John Henry, sing the songs Mark Twain heard when he sailed the river. Stout Bedford Forrest, who rode into Memphis and carried off a "Yankee general's pants," is still alive in the city's memories.

Memphis has her glamorous history, yet essentially the city reveals the spirit, the industry, the accomplishments of the New South. Downtown Memphis is a metropolitan center, and the smokestacks of numerous manufacturing plants stand out on the city's skyline. Memphis is the largest hardwood market in the world; it is a distributing point for all or parts of six States; and it is a rail and river terminal and junction of the first importance. There are two railroad bridges —one with a free roadway—across the Mississippi at Memphis.

Of all Memphis' industry and commerce, however, her trade in cotton reigns supreme. There, of all places, cotton is king in fact as in name. Over 2,000,000 bales of the fleecy staple were handled through Memphis during the 1931-32 season; and the value of cottonseed products produced in Memphis and tributary territory reached $37,000,000.

The Memphis territory produces all staples from 7/8-inch to 1 1/16 inches but is especially noted for cotton of excellent character, stapling from inch to about 1 1/8-inch. This cotton is so well established in the world's markets that in many places a Memphis bill of lading carries the prestige of a premium.

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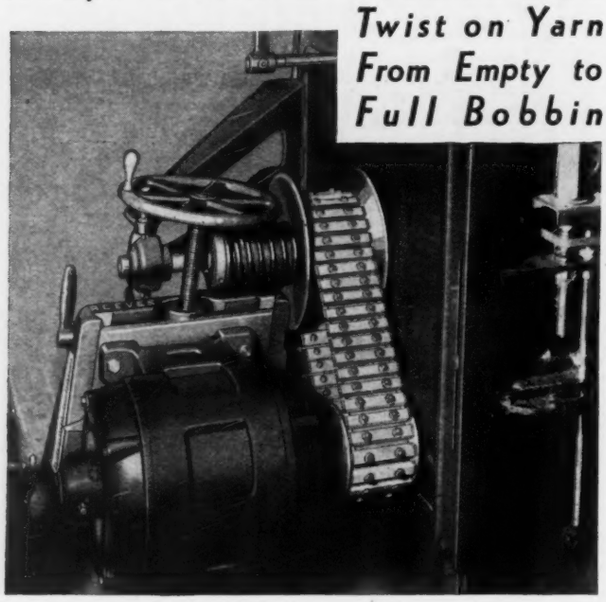

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starting to run it, when the cloth becomes impregnated with a warm size, it will soon soften up much more than can be achieved in any other way. It will be found that the boiling-out process, although it may give temporarily a softer feel, will eventually make the cloth much harder and much weaker.

"It is good practice not to leave a blanket soaked with size for too long a period. Although the size may have no effect on the blanket, still, when starch is exposed to the air for a considerable period, it becomes insoluble and it is good practice to play the hose on a blanket that is going to remain unused for a considerable period so as to eliminate as much of the starch as possible and thereby keep the blanket in good condition."

More Thoughts on Preventing Seconds.

EDITOR COTTON:

"Too many seconds, keep them down, as we are losing all of our profits because of an excess of second quality goods."

How often the cloth room and weave room foremen have heard this statement, in many instances when it is beyond their power to prevent such an excess.

As to quality and excess of second quality goods, there always has and always will be the point, what constitutes a second?

Who decides what shall be classed as first quality, and what as second—the treasurer, the agent, the superintendent, the boss weaver or the cloth room foreman? In our opinion, it should be the cloth room foreman because if goods are rejected or fault is found with them, he is the one who has to stand the criticism from all directions. We believe that the cloth room man should know if possible what the goods are to be used for or made up into, as this knowledge is of great value to him in grading and inspection. Buyers will insist on having goods made from as cheap material as possible, then when the goods are finished, will try for rebates from the mill, not taking into consideration that goods made from a better raw product would finish better in all respects.

A piece of goods, to constitute first quality, should be so that when used there will be no defects in it and so that it can be cut for whatever purpose it was bought for with very little if any waste on account of imperfections. Note that while builders of looms, weave room foremen, and even the common weaver, think that thousands of yards can be woven without any seconds, those of this opinion should go into the cloth room for a day and watch the cloth over the inspection frames. They would readily see that every defect shows very plainly, and then they should realize that the cloth room does not find these places just to make trouble, but to try to work with the weave room toward stopping them before they have gone too far. They must inspect in such an efficient manner that the buyer will be satisfied, and, when prices are on the downward trend, the buyer is all the more critical of the goods he is buying.

Efforts should be made to have the yarn of good strength and as even as possible; then there will be

less breakage on the slashers and in the looms, and the less breakage in these places, the better goods and less imperfections.

OLD-TIMER'S articles (The Story of OLD-TIMER'S Methods of Working and Management) apply to the inspection of goods in the cloth room, just as in any other department, such as the weave room, where someone should check up on each loom at least once a day for wrong draws, harness hung wrong, or pattern not weaving right. Check-ups like this would stop many seconds as there would be no repetition such as would prevail if the loom were kept weaving wrong until the defects were found in the cloth room. The expense of inspecting the cloth is very small compared with the cost of other processes and it is better to have the inspection done carefully, even if a small fraction is added to the cost.

Of course, plain white cotton goods could be and should be inspected at a great deal less cost than fancy weaves, silk, rayon or colored goods; more speed on all the cloth room machinery can be maintained on plain goods than on the others and still have the work done satisfactorily to the buyers.

I read the article "Thinking Aloud in the Cloth Room" (page 22, September COTTON) and agree with that writer on some things and disagree with him on others.

Shears are decidedly of great advantage and the mill that does not have them is losing money every day and not getting as good work as it should be getting. As regards floor space being utilized to the best advantage, one of the best layouts we know of is a mill where the cloth comes from the weave room, is placed directly back or at the side of the sewing machine, sewed into rolls, then rolled onto a platform that leads to the shears, then through the shears to another platform that is back of the inspecting frames, then direct from them to the folder—at no time retracing steps or passing by other processes—thence to the table until the bales are full, and then to the press.

Now as to grading, the author of "Thinking Aloud in the Cloth Room" says that a good grader can inspect at the rate of 50 or 60 yards a minute. I say this is too fast—25 years of experience has shown that a girl or man cannot see all of the defects at that speed even on plain goods, and a speed of 20 yards to 25 yards is better on fancy goods as there is less probability of complaint from buyers—and what mill does not have them?

We know of one man who was offered a fancy wage to take charge of a cloth room, and he learned before accepting the position that there were several hundred bales to re-inspect, re-grade and re-bale. Besides, the help were discontented and right on the edge on account of the change, and then there were the complaints. Did it pay?

Very few mills are using separate stencils, or if they are, they are absolutely back numbers, as most of them have a stencil machine which makes stencils very rapidly. The author of "Thinking Aloud in the Cloth Room" classes the cloth room as a secondary department, because it does not produce. Possibly it should be so classed, but if it does not produce, it does

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improve the appearance of the goods, and if they are properly graded the cloth room helps to keep the mill out of the red.

Now, as to the letter of "CONTRIBUTOR No. 6143," in the September issue, under the heading "Favors Running Long Cuts." How many cloth room foremen know just what is to be done with the goods that go through their rooms—whether they are to be bleached, piece-dyed or printed? Of course such a knowledge would be of the greatest assistance in grading, to save short lengths or seconds. As to long cuts, while the weaver is weaving a piece of 240 yards or 300 yards to avoid cutting into small pieces, how many more seconds are being made by reason of weaving these long pieces? We have seen many wrong draws that run continuously to a double piece of 125 yards, or the pattern was not weaving right or the harness was hung wrong, not showing enough in the loom for the weaver to see it. These have been found and the weave room notified in less than three hours from the time the piece was taken off, thus stopping another piece of seconds, whereas if the piece had been woven as long as this man recommends there would be more seconds.

Leaving the folder to grade the cloth may be all right in some mills, but if a folder that is folding so much cloth and running at such a speed that he has just time to mark the goods and style on one piece and then place it on the proper pile before another piece is ready for taking out, has no time for grading. As to less turned selvages on long cuts, that will make less, it is true, but if the cloth is properly stitched at the sewing machine, there is no need for any turned edges. To keep up-to-date and help the weave room and the shipping as much as possible, the cloth room should not have a lot of cloth stacked on the floor, but should never be more than a half day back of the weave room.

CONTRIBUTOR No. 6157.

Another Theory on Cockled Yarn

EDITOR COTTON:

I saw a very interesting question concerning cockled yarn in a recent issue of COTTON. "CONTRIBUTOR No. 4990" asked what actually takes place when cockled yarn is being made, and why the little soft lump without twist.

Cockled yarn is caused by the cotton having some long staple in it. In other words, the roving has some few fibers in it that are too long for the roller setting, and when some of these fibers are passing through the rollers, one end of the long fibers will start between the front steel roll and the front top leather covered roll before the middle rolls release the other end of the long fibers. While these long fibers are between the two front rolls and also between the middle rolls, the front rolls slip on these long fibers until the middle roll turns them loose. During this time the thread is almost stopped in front of the front rolls and the short fibers are passing through the front rolls at reglar speed and just lumping up in front of the front rolls and just slightly wrapping around the long fibers which are passing through the front rolls at the same speed as that of the middle rolls. This causes the twist to just run up to the lump and start down the thread toward the bobbin and the twist jumps over the lump and the twist that should be in the lump is on either side or end of the lump, mostly on the front end of the lump, and it is left in the thread.

CONTRIBUTOR No. 5058.

Practical Points on Card Grinding and Setting.

This man gives his ideas of a satisfactory method for a print cloth mill, including progressive settings. If you don't agree with him, tell us why.

EDITOR COTTON:

Having waited since the July issue of COTTON for criticism of my contribution to that issue on opening, mixing, picking, etc. (page 58, July 1932 COTTON), and not finding myself entirely dissected, I will give a contribution on cards—that "old machine that does not amount to anything"—under the same proposition applying to the other contribution: that these ideas represent only one man's way of seeing it after an analysis of his experience.

We will all admit, I believe, that the card has been more or less regarded and treated like an unwanted stepchild or some necessary evil, and as the stepchild often grows up and fills a very important place, so have we begun to consider the card after seeing it reach its rightful place in cotton manufacturing.

We carders all know it is true that when the lap is made right before the card gets it, that very likely the imperfections in the lap will show up more or less on through the mill, even in the cloth, prints more especially.

Supposing the lap to be as good as possible, even in inch-to-inch test, or 6-inch square pieces by tested, clean, no ragged selvages, an even percentage of waste mix, and within the tolerance for weight, while at the same time putting up a good front when the question of cleanliness is raised, personally I'd be satisfied to try to make a good 30s warp stock and a 42s filling stock from laps of that kind, not discounting them because of the fact that it is Strict Low Middling western 1-inch staple cotton that we are dealing with.

I consider that a card in good mechanical condition, with a draft of 110 to 115, should be suitable to use as a basis for this discussion. The most important man working around and with cards, and who should be an expert with his tools, is the card grinder. I'll admit that unfortunately he is not given the consideration in any way that he should have. Most men who know little if anything about the card think that any Tom, Dick or Harry can be made into a card grinder in a few days. However, I am thankful for the few men who are willing to give the grinder the place he deserves. Quoting a superintendent for whom I used to work, "Good things come high". This I think should remind us that a man's ability as a grinder, as well as the other requisites of a grinder, should govern to a great extent just how high we are willing for him to come.

Given a card as described, and a good card grinder

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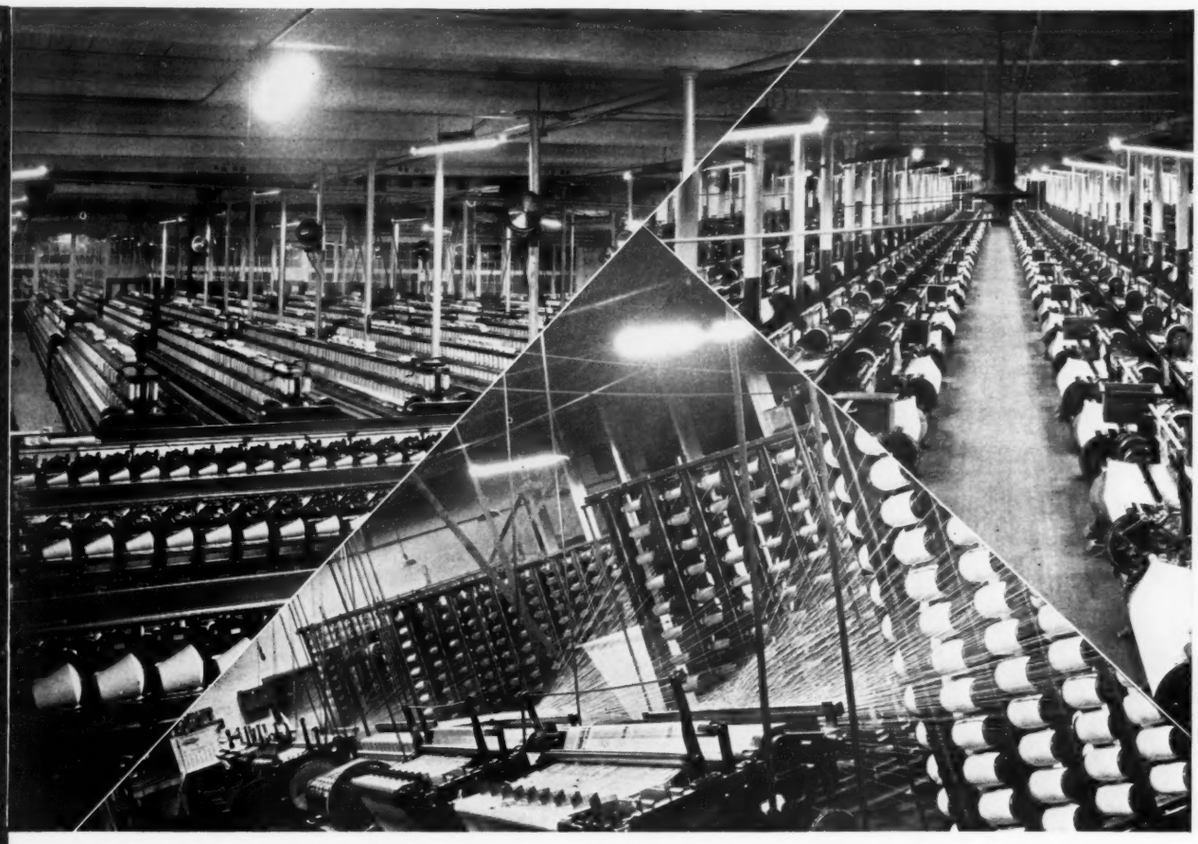

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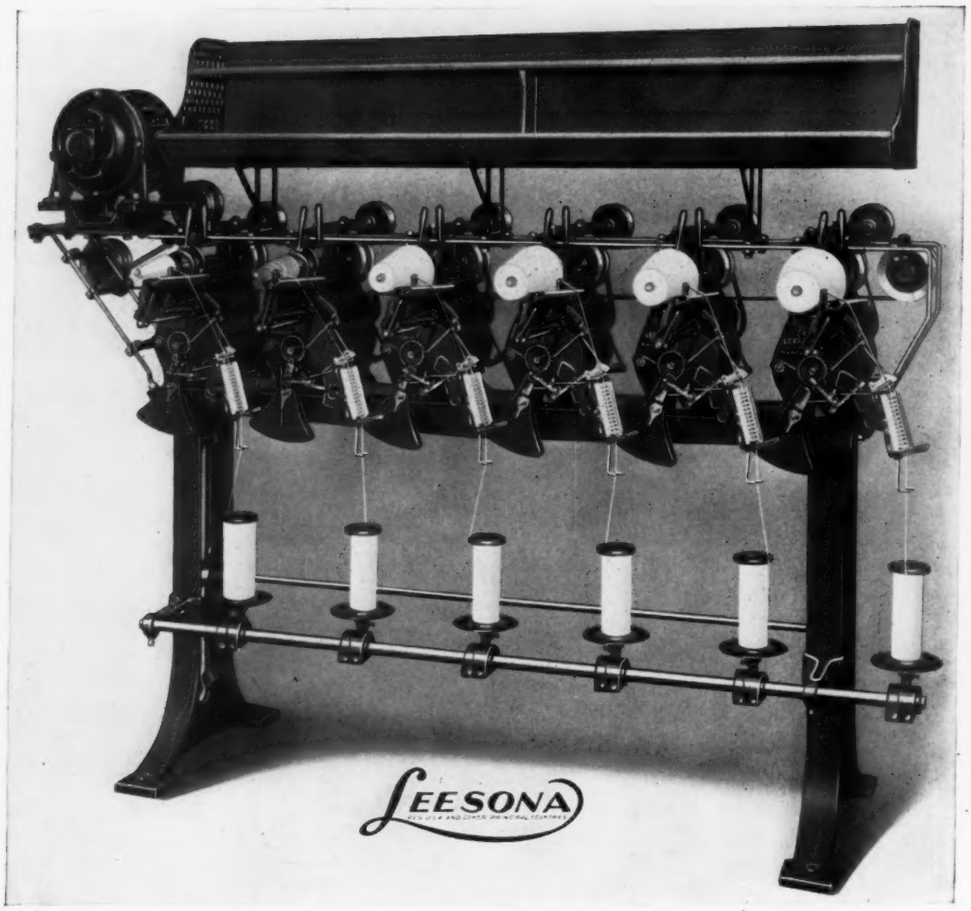

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at the same time having such a lap as I have already described, I would start off like this:

First, start with No. 1 card and follow directions closely until the job is gone over. Cut out the feed and strip out the card, then allow it to run until the flats have run around. Then stop the card and take a hook made from a cotton bale tie of sufficient length, and clean out all loose cotton from the cylinder and doffer ends between ends and side walls of the machine. Now clean out all fly waste, both front and back. If the fillet is tight the doffer need not be backed off, but if the fillet is loose, then the doffer should be backed off until it is certain that no wire on the cylinder has a chance of striking that of the doffer. (However, this condition would not be found on a card good mechanically and otherwise).

Now we are ready to put the rollers on, but before doing this it is well to examine the emery fillet on the grinding rolls, both traverse and dead roll or drum grinder. Incidentally, I am partial to a certain American emery fillet, No. 24, that is economical and does not have to be conditioned before applying it to the grinding rolls.

Perhaps I should have already said that the doffer gear should be removed and care exercised that the gears in the feed shaft to doffer train have no possibility of becoming meshed during the grinding operation, and a good brush made for the purpose should be used to clean whatever grit and dust from the fillet of both doffer and cylinder is left by the stripping roll. Adjust all belts and bands and start the card up, having the cylinder rotate in the opposite direction to that

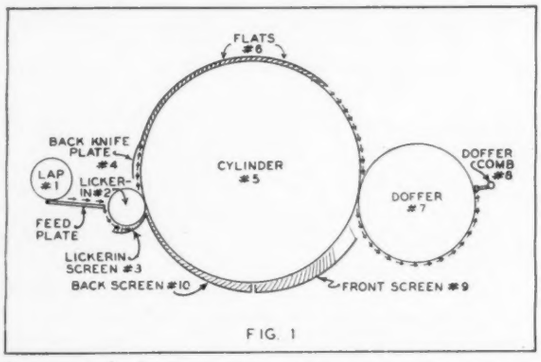


FIG. 1

Arrows indicate line of travel from lap, No. 1, the starting point, to doffer comb, No. 8, where the web is stripped from the doffer. Licker-in screen is more open at back than at nose, back knife plate is more open at bottom than at top. As the flats have a tendency to raise up at the start or just above the back plae, there is no need for explanation there. The front screen, No. 9, is more open at front of screen and cylinder than at center; back screen, No. 10, is more open at center of cylinder than at screen nose or point between licker-in and cylinder . . . . . .

in which it travels when producing sliver.

I like the old method of belting the doffer to cylinder far better than that of what is called "slow grinding" the doffer. In slow grinding it is necessary to use the licker-in, doffer belt and all gears from the Barow pulley to the doffer. This is to my mind a useless wear and tear on those parts and does not give as good a grinding as the regular method.

Now pull down the grinding rolls until there is an even sound of contact between the emery fillet and wire from end to end of doffer and cylinder, having an occasional spark. Let it run in this way for about 1½ hours (time varies with the condition of both emery and wire fillet and in some cases an hour might be enough). Go back and pull the grinding rolls down until a steady "hissing" sound is heard from end to end and then let it run, say for five hours from the time the grinding was started. If after that time the rollers are not grinding well, then pull down slightly and let the card grind until you are ready to set it up. This will give a polished appearance to the wire and the number of barbs on wire points that heavy grinding gives will not be there.

My theory is to grind light and often, instead of heavy and infrequently.

Just before stopping the card to set it up, take a blow pipe (compressed air hose) and blow off all lint, dirt and dust from the card, not neglecting the flats. After doing this, there should not be anything on the fillet to interfere with the gauges. The rolls are re-

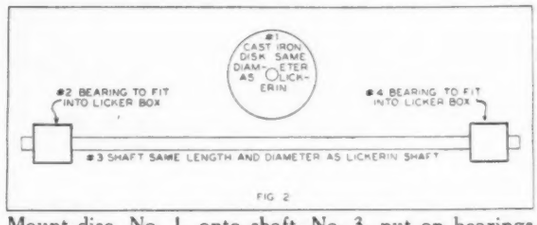

#1 CAST IRON DISK SAME DIAMETER AS LICKERIN
#2 BEARING TO FIT INTO LICKER BOX
#4 BEARING TO FIT INTO LICKER BOX
#3 SHAFT SAME LENGTH AND DIAMETER AS LICKERIN SHAFT

FIG. 2

Mount disc, No. 1, onto shaft, No. 3, put on bearings No. 2 and No. 4. Remove licker-in from its place and put this device in place of licker-in. The disc will slide from one side to the other of the card, and the movable parts are set to the disc . . . . . .

moved and the doors let down alongside of the card, at the base, back and front fly doors, feed plate and feed rolls, and the licker-in.

Now we are ready to set up the screen. First see that the nose of the screen comes to within 2¼ inches of the back plate bottom edge. Next, set the nose of the back screen to cylinder to a 22 gauge, working down to the center of the screen where the front and back screens join. Set both screens at the joining point to a 34 gauge, and the front of the front screen to a 3/16-inch gauge. This will give a progressive setting, as shown in Fig. 1, which will be discussed later.

After finishing with the back and front screen, use the licker-in circle or setting device as per Fig. 2, and set the screen nose and licker-in to a 29 gauge. On some makes of cards it would possibly be better to set the licker-in to the cylinder first and then begin with the screen settings.

With the cylinder screen nose and licker-in set to a 29 gauge, the "base" of the licker-in screen should be set to a 29 gauge, and the lower edge or part of the screen called the toe should be set to 1/16-inch or ⅛-inch depending upon the amount of fly waste dropped. Set the top mote knife to a 12 gauge, bottom mote knife to a 10 gauge. Set the licker-in to the cylinder to a 7 gauge and the feed plate to the licker-in to a 10 gauge.

Before putting the feed roll back into its stands, remove the feed roll gear and both feed roll bearings,

being careful to replace the bearings on the same end of the roll that they came from. Now clean these bearings, put in a few drops of oil and replace. Put on the gear removed and lay roll into its stands and hang weights. Now take hold of the long end of the feed roll and raise up and let down to see if there is play between the bearing and roll neck. If there is, have the bearing and roller neck re-fitted. To some this may seem to be a trifling matter, but it is not; it is very I-M-P-O-R-T-A-N-T, and notice this is spelled with capital letters.

It was the writer's pleasure to work on a job once where the yarn was very uneven. The trumpets on the cards and drawing choked badly, and working conditions, so far as the way the work ran was concerned, were not very good. I found these feed roll bearings worn so badly that I could fold eight folds of 5.00-yard goods and insert it between the feed plate and the feed roll and pull the cloth out without feeling any friction by the roll or moving the roll, and the roll was not geared up. Needless to say, after these rolls were put into condition the troubles mentioned went away.

Now that we have finished the screen and the back, before we put on the licker-in bonnet, let's set the back knife plate, set the top edge (the edge toward the flats) to a 22 gauge and the bottom edge to a gauge made from 14 gauge sheet metal. This is still a progressive setting.

Setting the plate in this manner will decrease fly waste and increase motes, leaf and trash and will make the toppings or flat strips much darker.

Set all flats to a 9 gauge. (If the clothing is excellent, and the grinder is good and the carding is light, on a good floor, a 7 gauge can be used). While setting the flats on the back and front stands, be careful to hold the flat down against the bend with one hand and run the gauge with the other. Set the doffer to a 7 gauge and be careful not to hit the doffer journals or bearings with anything except the "bare knuckles". There are draw bolts for moving the doffer, and if the bearing is barely loosened there will be no trouble in moving the doffer, as it was built to be moved—with the draw bolt. I once hired a grinder and the first day he went to work I caught him using a large hammer to bump those doffer bearings forward. I still have his hammer as a "memento".

Set the doffer comb to a 22 gauge and the hackle comb so it will clean the strips from the flats but not touch the wire at the back edge of the flat.

I've saved this until now so that no one will become confused. When setting, don't ever pull the movable part up to the setting and leave it there, for this will cause "faced fillets". Always pull the part being set up until the gauge is right and then back off with the draw bolt. After doing that be sure to tighten all jam nuts and locking screws, then re-examine the settings; if they are set right they will remain so. The belts may be put on, the card oiled up, and the lap laid down, and the end put up with assurance that the card will do good work.

For general care and maintenance, I favor the following, if using the cotton named: Line and level the card at least yearly. Grind every 15 to 20 days. Keep good grease in the cylinder and licker-in bearings, adding a few drops of oil daily. Overhaul the comb boxes as soon as they begin to leak, and when re-assembling be sure to have all oil channels directly in line and over each other to insure an unobstructed flow of oil. (Use only what is called red engine oil in comb boxes). Seal the heads on both sides of the comb box with white lead.

Oil feed roll bearings and lap roll bearings three times weekly. Oil coiler head rolls and gears daily. Oil step bearing on coiler head when card is ground. Oil all other parts daily except the doffer comb, and oil it twice daily and fill comb boxes twice daily. (It may be necessary to fill oftener when proper care has not been given or the cards are very, very old).

Oil belts with a good belt oil one time each week. Keep the lap guides properly set. Use endless or woven licker-in belts, flat drive belts, doffer drive belts and comb bands. They last longer, are safer, and are more satisfactory in every way.

A fan *may* be permissible, but never use a hose pipe around cards except as already stated. It is much better to use a mop and wipe off the bonnets with strips.

Remove the fly waste daily, remove toppings or flat strips before they get heavy enough to pull the springs down. Strip four times daily, with a stripping roll. Watch for bagging or stretching web, oil chain pulleys weekly. Teach the card hands how to lay down laps without making heavy or light places or choking down the licker-in.

There is no excuse for letting a tail-end of the lap go into the card, so don't permit it. Don't let the card hands break out and piece up, or unroll laps. See that all lap pins are straight; otherwise the lap will stretch, break or tear when it has run down to three or four inches in diameter.

The progressive method of setting gives me best results, and if we look at it practically, it is just the same as trying to pour water through the large end of a funnel. Common sense teaches me that I could not hope to do a good job by trying to pour it into the small end of the funnel.

CONTRIBUTOR No. 6123.

National Cotton Week—May 15 to 20, 1933.

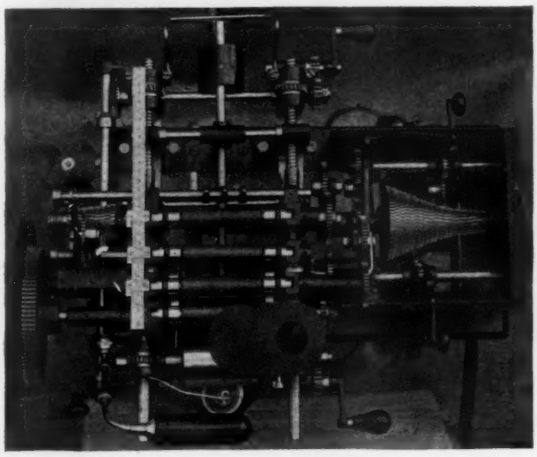
The week of May 15 to 20, 1933, has been designated for the third annual observance of National Cotton Week, it was announced recently by George A. Sloan, president of The Cotton-Textile Institute. This date was selected after expressions from a number of representative retailers in various parts of the country, that the middle of May had proved to be not alone well-timed for the event, but also offered no end-of-month inventory complications.

Success of previous observances has won an established place on the trade calendar for National Cotton Week as a definite factor in stimulating Spring and Summer business. More than 25,000 department stores and other retail establishments participated in the 1932 observance and merchants reported that the impetus gained therefrom continued to be reflected in the sales volume of cotton goods departments throughout the summer seasons, it is stated by Mr. Sloan.

New Textile Equipment and Publications

Roll Spacing Determinator

The Belger Co., 36 Pleasant St., Watertown, Mass., are marketing in this country a new machine, known as the "Distanceur", for determining the correct roller settings, drafts and weights, from drawing frames to spinning frames. The accompanying illustration shows a top view of the mechanism, with the cover of the draft gearing removed. It is explained that with this machine, roller settings, drafts, and weights may be changed by means of levers and cranks while the machine is running, without stopping the machine and without any calculations. Through a new tension lever, in connection with a viewing device, the correct roller spacing is found and read directly from a scale.



A device for determining correct roller settings, weights, drafts, etc. . . .

The function of the machine is to provide a means for determining the effect of different roller settings, drafts, etc., without the necessity of changing these settings on a standard frame.

:: :: ::

Patent on Leasing Machine

David A. Day, of the Rex Spinning Co., Gastonia, N. C., has just secured patent, through Paul B. Eaton, patent attorney, Charlotte, N. C., on a leasing machine to be placed in warp handling apparatus, whereby leases can be made in moving warp without the necessity of stopping the warp handling machine for taking a lease.

As is known, it is necessary to form a shed in the warp about every 500 yards, and pass through a thread to separate the warp threads into two sections; heretofore it has been necessary, Mr. Day points out, to stop the warping machine, singeing machine, etc., after approximately 500 yards of warp have been run through. The new machine, it is explained, makes it possible to run the warp continuously without stopping to take a lease.

The principle on which the machine operates is to have pairs of slotted tubes and means for forming two separated sheds in the warp while it is moved and to insert these tubes with a lease thread therein, through the sheds, and the operator ties the ends of the lease threads together and the tubes are left in this position until, say, 500 yards of warp has been run when the measuring device automatically withdraws the tubes from the sheds leaving the lease thread to be carried along by the moving warp. It is stated that this machine has been in operation for more than a year by Mr. Day, showing approximately double the number of yards per day handled and requiring the service of only one man for the operation of these lease forming machines.

:: :: ::

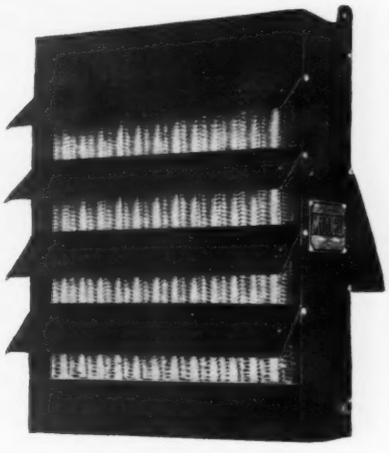
New Steel Chain Book Off Press

An illustrated 144-page catalog, on the subject of steel chains, has just been completed by Link-Belt Company, 910 South Michigan Ave., Chicago, Ill., which covers information on older chains, brought up to date, and many new and useful sizes are presented for the first time. The sizes range from the small detachable steel Link-Belt, having an ultimate strength of 950 pounds, to powerful chains of as great a strength as 1,500,000 pounds. Many attachment links are illustrated for elevating and conveying work; and a comprehensive line of sprocket wheels has been included, enabling the user to select suitable sizes of sprockets for the work to be done.

:: :: ::

New Unit Heater

McCord Radiator and Manufacturing Co., Detroit, Mich., have developed a new type of unit heater for industrial use. This company has for 25 years manufactured various types of heat transfer equipment, especially radiators for automotive equipment, and condensers and evaporators for commercial and domestic refrigeration. The new unit heater, shown in the accompanying illustration is, however, not an adaptation of automotive construction practice, but is a result of engineered unit heater design.

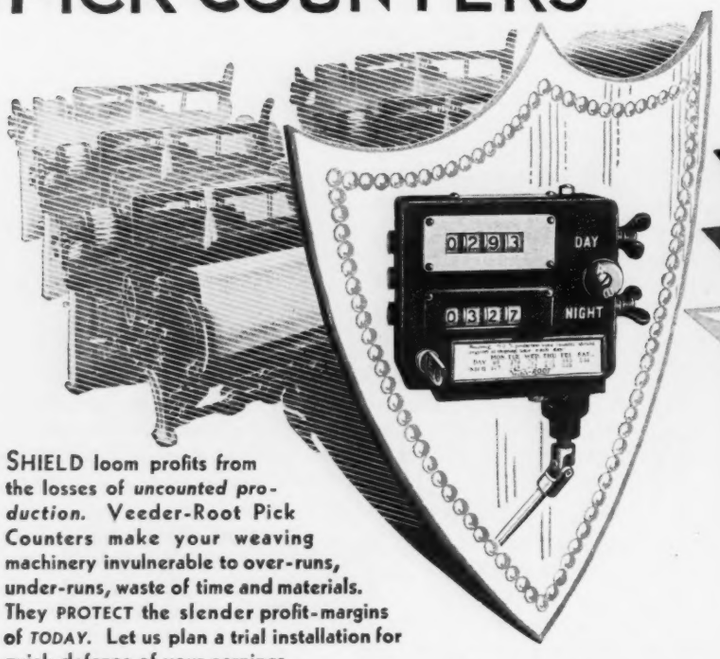


New Unit Heater.

The McCord unit heaters operate by circulating heat, not by radiating heat, it is pointed out. Among features presented by the company as contributing to durability and long life are extra heavy seamless copper tubes with an extra wide spiral copper fin. The manufacturers explain that the unit may be completely dismantled for cleaning, and that any single part may be replaced individually. Individual tubes can be removed from the head plates by loosening specially designed brass compression nuts, and the tanks are bolted to the header plates and are readily removable, it is stated. Special design was incorporated to produce a quiet unit without vibration; and balanced suspension to take the strain off of the steam pipes. Copper is used in the individual tubes and fins, it is stated, because of the high heat con-

Veeder-Root Guard Slim Profits
PICK COUNTERS

from



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ductance and transfer capacity of this metal. The heaters are inspected and tested for 125 pounds working steam pressure before shipment.

:: :: ::

New Wrapping for Acme Nailless Band

The Acme Steel Company, 2840 Archer Avenue, Chicago, Ill., manufacturers of package re-inforcements, are now shipping Acme nailless band in the new Acme annular wrap package. This new wrap, on which patent is pending, consists of a double face kraft burlap lined paper that is tailored to fit and completely cover each coil. Aft-

New Style Wrapping.

er this wrap is applied, two coils are strapped together with three Acme nailless bands, making a unit that weighs, depending on the width and thickness of the band, from 165 to 200 pounds. It is explained that this provides a neater, more convenient package to handle, keeping the finish of the band free from moisture and dust until each coil is used. A double thickness of the wrapper protects the edges of the band from nicks and damage in transit.

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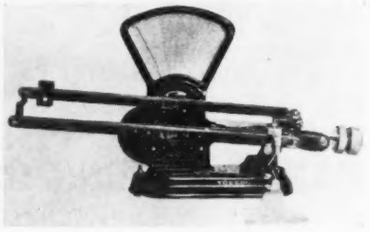
New Variation Gauge

Toledo Precision Devices, Inc., Toledo, Ohio, have developed the Toledo Variation Auto-Gauge, for measuring and indicating the increase or loss of any physical property in any material. Increases or decreases in elasticity, spe-

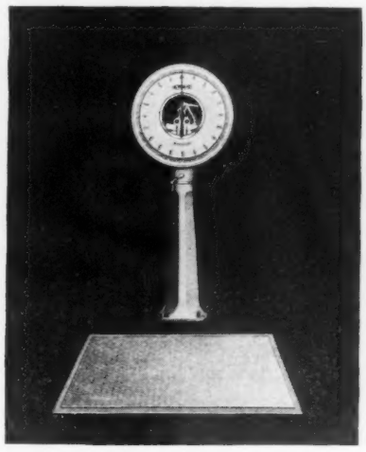


Variation Gauge.

cific gravity or moisture, it is pointed out, are quickly shown. It also determines the percentage of volatile which can be driven out of a material. The device is available with calibrations in per cent, elasticity, specific gravity, pounds and ounces. Two sizes are available: For samples from two ounces to three pounds and for samples from four ounces to six pounds.

Re-Designed Scale Line Announced

The Kron Company, Bridgeport, Conn., have announced the completion of the re-designing of the company's entire line of automatic dial scales, including portable and dormant platform scales, bench scales, hanging pan scales, etc. The description states that the design of the indicating mechanism has been changed and simplified. The number of bearings in the mechanism has been reduced to eight, six of which are ball bearings especially designed



One of the New Scale Designs.

for the scale mechanism. The sector and pinion design is such, it is pointed out, that no variation is possible in the mesh of the gearing. A further development is a device for absorbing vibration in the installation which might be transmitted to the scale pointer. The entire dial head is completely sealed to prevent entrance of dust and moisture, it is explained. The dial head is also arranged to swivel 360 degrees so that it may be turned to allow accurate reading from any direction. The platform designs have been simplified, in some cases, with the elimination of intermediate levers. The scale unit is given an attractive finish with chromium-plated trim.

:: :: ::

Tractor-Feed Felling Machine For Pre-Shrunk Denims

Union Special Machine Co., Chicago, Ill., have developed a new type of tractor-feed felling machine, designated as Style 35800 S, and especially adaptable to use on pre-shrunk denims for overalls. The company explains that the pre-shrinking process draws in the fabric a considerable amount, and that ordinary sewing results in a wavy, distorted seam. The design of the new machine makes use of tandem presser feet of a recently introduced type. The feed dog is so located that it engages the front presser foot a fraction of a second before coming into contact with the rear foot; the front foot also continues to feed a fraction of a second after the rear foot has been disengaged. It is pointed out that the extra amount of feeding done by the front foot tends to gather up a small surplus of material just ahead of the rear foot, and it is at this point that the stitch is made.

:: :: ::

Firm Name Changed

The Cincinnati Mailing Device Company, Third and Eggleston Ave., Cincinnati, Ohio, manufacturers of cylindrical fiber cans, mailing tubes and cases, and paper winding cores, have announced that, effective November 1st, their company name is: The Cin-Made Corporation.

This change has been made, according to A. J. Harris, general manager, after considerable deliberation by the officials of the company. He said, "Our present name is somewhat of a misnomer and does not properly typify the products we manufacture. In view of the fact that for a number of years we have used the trade-mark Cin-Made in our advertising and on our products, many people have become accustomed to addressing us in that manner rather than as the Cincinnati Mailing Device Company. Therefore, we have concluded that by changing our name we will be able to more closely connect our name with our products."

It is emphasized that the change in the corporate name in no way alters the established policy or management of the company, which will continue to fabricate fiber cans (either paper or metal ends) mailing cases and tubes and paper winding cores.

:: :: ::

Ashworth Takes Over Platt's Clothing; Hill Is Southern Representative

Announcement has been made that Ashworth Brothers, Fall River, Mass., have acquired the American business of Platt's Metallic Card Clothing Company, and that Francis L. Hill, formerly American representative for Platt's Metallic Card Clothing Company, will act as southern representative for Ashworth Brothers, handling all of Platt's tempered wires.

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Jacques Wolf & Company Opens Additional Plant

Jacques Wolf & Co., Passaic, N. J., have added another unit by the purchase of additional property and building at Carlstadt, N. J., for the purpose of extending manufacturing facilities. Gerald J. Desmond, sales manager, has been elected a director and secretary of the company. In his new capacity, Mr. Desmond will continue his personal contact with the dyers and printers in the vicinity of Paterson and other textile centers in the South and East.

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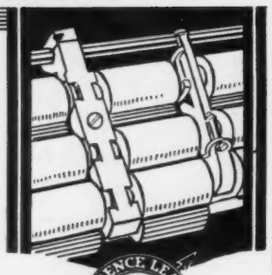

THESE calfskins are tanned and finished under rigid specifications and inspection to prevent roughing. The natural fine grain of "Spinna Calf" assures perfect traverse and draft.

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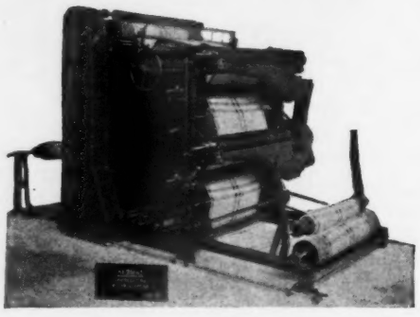

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NEWS ITEMS *with a Textile Slant*

Veeder-Root Opens Own Office in Greenville.

Veeder-Root Company, Hartford, Conn., have announced the opening of a direct sales and service office at 1401 Woodside Building, Greenville, S. C., through which they are serving the mills of the South on their line of hank clocks, pick counters and other counter devices. Arthur E. Kallinich, field sales manager of the company, has removed to Greenville, and is in charge of this office. Mr. Kallinich, before becoming field manager, had represented the company in the New England territory. He is well known among many of the southern mills as well.

A. E. Kallinich.

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A. M. Barrett Again Heads Barrett-Cravens Company

A. M. Barrett, for many years prominent in the materials handling industry, has again assumed complete control of the Barrett-Cravens Company, manufacturers of lift-trucks, skids, portable elevators, and structural steel storage racks. The new quarters of the plant are at 3255 West 30th St., Chicago, Ill., in the company's own three-story building.

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Bedspread Business of Bates and Monadnock Consolidated

A consolidation of the bedspread business of the Bates Manufacturing Co., Lewiston, Maine and Monadnock Mills, Claremont, N. H., has been consummated. These two old New England Mills have long specialized on woven bedspreads and it is expected that a consolidation will greatly strengthen the position of both and will accomplish at the same time a broader distribution with obvious economies in both manufacture and sales. Bliss Fabyan & Co., will distribute the combined products, together with the genuine Ripplette Bedspreads. These two lines have always been more complementary than competitive, as Monadnock has specialized more on spreads suitable for hotel, hospital and institution trade, whereas the Bates have specialized in highly styled cotton and cotton and rayon spreads for household use.

It is believed that this merger will have a most important influence on the creative phase of bedspread production and that the distribution of the combined product of this consolidation, through Bliss Fabyan & Co., will provide a considerable expansion of the "Bates Selective Distribution" plan inaugurated by Bliss Fabyan and Company several years ago.

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S K F Moves Hartford Factory to Philadelphia

S K F Industries, 40 East 34th St., New York City, supervising the Skayef Ball Bearing Co., Hartford, Conn; the Hess-Bright Manufacturing Co., Atlas Ball Co., and S K F Research Laboratory of Philadelphia, have announced the consolidation of the manufacturing activities of The Skayef Ball Bearing Co., of Hartford with the Hess-Bright Manufacturing Co., at Philadelphia. The complete line of products previously manufactured at Hartford will be continued at Philadelphia. This action, it is announced, will effect to the advantages of the concentration of manufacturing and research activities.

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Tubize Chatillon Inaugurates Unique Advertising Program

A national market expansion program for stockings and underwear of Chardonize dull luster yarn has been projected by the Tubize Chatillon Corporation, 2 Park Ave., New York City. The program, launched to add impetus to the national acceptance of Chardonize yarn, centers around an advertising campaign. In addition to a group of prominent trade publications, a national consumer magazine reaching women in all sections of the country is being used. A prospectus notifying women's apparel retailers throughout the United States of the consumer advertising has been mailed to a selected list. According to representatives of the company, the Chardonize consumer advertising of popular priced hosiery and underwear is probably the first advertising effort to recognize tangibly that the major percentage of all synthetic yarns is knitted into inexpensive apparel. The primary purpose of the expansion program is to aid hosiery and underwear manufacturers and retailers in their distribution of merchandise made from Chardonize.

Cotton Bags for Walnuts

Following successful test shipments last year, the California Walnut Growers Association is now turning to the use of cotton bags in a big way for the put-up of this season's crop. On the first order recently placed, 75,000 heavy cotton sacks of the 100-pound size and 400,000 cotton "pockets" of the 4-pound size have been purchased. The Cotton-Textile Institute reports that these bags will provide for the packaging of about 12 per cent of the entire crop of California walnuts, lately estimated at 40,550 tons, which is 27 per cent larger than last year's yield.

In 1931 the growers' organization followed up its extensive trial shipments in cotton bags by questionnaire concerning the trade reaction to the innovation. A preponderance of sentiment favored cotton bags not only because of the satisfactory condition of the package at destination, but also because of their attractive appearance.

The use of cotton bags in this field follows their adoption by pecan growers and their very extensive use for the packaging of potatoes, flour and many other food stuffs. One of the added appeals of the cotton bag is that it can be re-used in many ways by house-wives, even to the extent of being re-made into knockabout underwear and clothing for children.

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Cotton Fabric in Road Building

Use of cotton fabric in road building has progressed from successful service tests to major construction in a new two and a half mile section of cotton surfaced highway just completed near Baton Rouge, La. According to the Cotton-Textile Institute, the "cotton road" over a period of years has demonstrated its rugged service qualities and economy in experimental strips in various States, notably South Carolina and Texas. In Louisiana the experimental stage has been passed and the first miles of "cotton road" into the great network of American highways have been actually constructed.

This new roadbed was laid on a base composed of sand, gravel and clay. After preliminary grading, the method employed by the highway engineer, Arnold M. Davis, included application of an asphaltic coating, rolling, and a second application of asphaltic substance upon which the cotton fabric was laid. This was an open weave fabric weighing approximately 4½ ounces per sq. yd. An asphaltic coating then was applied over the fabric, road-surfacing material was spread, and rolling was again employed. Later on, a final top dressing of asphaltic oil and sand was applied and rolled.

In this type of road construction the cotton fabric forms in effect a waterproof cover over the entire roadbed, acts as a binder, and gives added strength to the paving material. Penetration of water beneath the surface is one of the major causes of road deterioration and this is prevented by the waterproofed blanket of the "cotton road". In South Carolina, a strip of "cotton road" laid six years ago and exposed to usual traffic conditions has required no repair attention and is still in excellent condition.

The now accepted use of cotton in road building is not strictly new, as some 25 years ago in New England cotton fabric was laid over sand to provide a non-shifting surface for stone and other material when the first motor roads were being built out on Cape Cod. Cotton road construction now is attracting the attention of highway engineers also in various foreign countries. In England the first experimental road construction of this type abroad was completed last year.

The elimination of highway erosion and ravelling at the edges, claimed from the use of cotton fabric, make this type of construction particularly applicable to earth, or so-called "dirt" roads of which more than 2,000,000 miles are now existent in the United States. These are the non-surfaced roads penetrating into rural districts throughout the country. It is expected that a share of the $120,000,000 provided for highways by the recent Emergency Relief and Construction Act passed by Congress at its last session will be applied to the improvement of the dirt "farm-to-market" roads.

In this connection it is interesting to note that cotton fabric is being used experimentally on a 600 foot section of dirt road in Louisiana to test the practicability in service of a cotton fabric binder and top surfacing applied directly to a dirt base. In this case the base was merely graded and leveled before application of the other materials, at a saving of 8 cents per square yard by the elimination of customary additional preparation. So far, this section is giving as satisfactory service as the other sections which had received the additional preparation and is meeting every expectation as to permanence and riding quality.

The work of constructing Louisiana's two and a half miles of "cotton road" will probably be shown in motion pictures at the annual Asphalt Paving Conference to be held in New Orleans during the week of December 5th by Mr. Davis, engineer in charge of the work.

Annual Cotton Buying Trip of Goodrich

The annual fall trip of B. F. Goodrich Company officials through the southern cotton belt, contacting cotton shippers and surveying next year's crop prospects began at Atlanta, Ga., on September 28th. M. N. Twyman, manager of cotton and fabric purchases, Akron, headed the group, accompanied by Charles G. Thompson, manager of the cotton and waste division of Martha Mills, Inc., the Goodrich company's fabric mills, at Thomaston, Ga. Goodrich annually uses 75,000 bales of southern cotton in the manufacture of fabric for tires and more than 30,000 other articles of rubber in which cotton is a basic product.

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PUBLISHER'S STATEMENT

of the ownership, management, circulation, etc., required by the act of Congress of August 24, 1912, of COTTON, published monthly at Dalton, Ga., for October 1st, 1932.

State of Georgia, County of Fulton.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared W. J. Rooke who, having been duly sworn according to law, deposes and says that he is the Business Manager of COTTON, and that the following is to the best of his knowledge and belief, a true statement for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, W. R. C. Smith Publishing Co., Atlanta, Ga.; Editor, R. W. Philip, Atlanta, Ga; Business Manager, W. J. Rooke, Atlanta, Ga.

2. That the owners are: W. R. C. Smith Publishing Co., Atlanta, Ga.; W. R. C. Smith, Atlanta, Ga.; W. S. Cushion, Cleveland, Ohio; O. A. Sharpless, Atlanta, Ga.; J. C. Martin, Atlanta, Ga.; H. H. Kelley, Willoughby, Ohio; W. J. Rooke, Atlanta, Ga.; T. W. McAllister, Atlanta, Ga.; P. D. Hammett, Chicago, Ill.; E. W. O'Brien, Atlanta, Ga.; E. L. Philpot, Atlanta, Ga.

3. That the known bondholders, mortgagees and other security holders, owning or holding 1 per cent or more of total amount of bonds, mortgages, or any other security holders are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appear upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs containing statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stock holders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bonafide owner and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

W. J. ROOKE, Bus. Mgr.

Sworn to and subscribed before me this 1st day of October, 1932.

E. L. PHILPOT, Notary Public.

My Commission expires March 2, 1935.

Obituary Notices.

EDWIN HADLEY, who for a number of years was southern manager for Waterman, Currier & Co., cotton yarn merchants, died at his home in Charlotte, N. C., on Saturday, September 17th, following a heart attack. Mr. Hadley was 60 years of age, and Mrs. Hadley and six children survive.

JAMES I. PRITCHETT, president and treasurer of Riverside & Dan River Cotton Mills, died on Sunday, September 25th, as a result of injuries received in an automobile accident on September 20th. Mr. Prichett was 75 years of age. He succeeded to the presidency of Riverside & Dan River upon the death of the late HARRISON R. FITZGERALD, in 1931.

JAMES H. KINNEY, vice-president and general manager of the Cyclone Fence Co., Waukegan, Ill., and president of the Standard Fence Co., the Pacific Coast subsidiary of the Cyclone concern, died suddenly at his Waukegan home on September 21st. He had been associated with the Cyclone Fence Company since 1916, and previous to that time was general sales manager of the Cleveland (Ohio) Cyclone Fence Co. He enjoyed a broad acquaintance in merchandising and industrial fields, and was an especially prominent figure in the wire fence and screen cloth industries.

FRANCIS COOPER PINKHAM, 72, president of the Gambrill & Melville Mills, Bessemer City, N. C., died on October 10th following an extended illness. Mr. Pinkham was for years a prominent figure in textile merchandising and manufacturing. He was a member of Tatum, Pinkham & Gray until this concern was liquidated in December 1931.

LINDSAY PADGETT, for many years a prominent textile operating executive, died recently at his home near Charlotte, N. C. He was 60 years of age.

W. H. WILLARD, one of the best known dyestuffs men in the country, and southern manager of the National Aniline & Chemical Co., with headquarters in Charlotte, died in a Greensboro, N. C., hospital on October 12th, following a short illness as a result of a heart attack. Mr. Willard was 60 years of age, and had been connected with National Aniline & Chemical Company for about 15 years. He is survived by Mrs. Willard, one sister and two brothers.

KNITTING SECTION

THE NEW RIGHT-ANGLE HEEL

And now Scott & Williams, Inc., offer users of their "Gussetoe" K Spiral machines the new **RIGHT-ANGLE** heel attachment . . . producing the perfectly fitting stocking foot . . . toe, instep, ankle and heel . . . *not seamed*. The new **RIGHT-ANGLE** heel, with its shaping stitches knit at right angles, naturally fits the "right-angled" human foot . . . The snug fit, . . . knit, not boarded . . . is lasting!

Washing will not distort it; or shorten the foot's length. Under garter strain it will not "ride up", nor can miles of walking make it "ride down". The new **RIGHT-ANGLE** heel, added to the "Gussetoe", furnishing the perfectly fitting foot, is Scott & Williams' latest notable contribution to better hosiery.

"This is the Scott & Williams Machine Age"

ESTABLISHED 1865

SCOTT & WILLIAMS

INCORPORATED

366 BROADWAY, NEW YORK, N. Y.

HOSE FOR ALL OCCASIONS ON THE "STANDARD" 80 WRAP

Sports wear—street wear—dress wear . . . whatever the consumer requirement, it can be met in an attractive and appropriate design with half-hose made on the Standard 80 Wrap. This machine's versatility gives you *style* leadership; its mechanical proficiency gives you fabric *quality* that recommends itself!

What's more, on the 80 Wrap you have the advantages of the exclusive "Gussetoe"—fine gauge—and the possibility of using any yarn construction.

and TECHNICALLY SPEAKING:

Pattern flexibility, and the fact that any number up to 80 of adjacent needles can be wrapped, are clearly illustrated in the two "80 Wrap" designs shown.

From both a mechanical and a sales point of view, the Standard "80 Wrap" is the most advanced wrapped embroidery hose machine on the market.

STANDARD TRUMP

Established 1872

STANDARD-TRUMP
BROS. MACHINE CO., INC.

366 BROADWAY NEW YORK, N. Y.

Scouring and Dyeing Hosiery in Rayon-Cotton Combinations

By Mynhart O. Brueckner

AN inquiry from "Contributor No. 6130", published on page 87 of the July issue in the "Knitting Kinks" department, requested a discussion of hosiery scouring and dyeing problems, with particular reference to scouring and union dyeing rayon and cotton combinations of hosiery.

In answering this inquiry, the author of the accompanying article has covered the subject in a thorough manner, dealing with the four main groups of rayons separately in addition to discussing generally the subjects of scouring and dyeing union goods.

Further discussions of the question have been received, and will be used subsequently in "Knitting Kinks". Other readers are invited to submit their experiences.—The Editor.

THE scouring and dyeing of rayon and cotton combinations of hosiery presents so many different problems today that it is impossible to deal with that subject as a whole. We must consider each individual type of rayon as a subject matter to deal with one at a time. The rayons today fall into four large classes, namely: viscose, nitro-cellulose and cupraammonium rayons and acetate rayons or silks as the manufacturers of such synthetic yarns prefer their yarns called. The problems concerning the processing of each type of rayon have similarity only in the fact that they must be scoured and dyed, but the details of handling each individual type of rayon presents an entirely different story. We will not consider the rayons therefore as a whole but as four large classes and will endeavor to show from practical experience just how they differ in their characteristics so far as handling them in a dyehouse is concerned.

The Purpose of Scouring.

The purpose of scouring rayons is to remove the oil which has been mechanically incorporated into the yarn to facilitate knitting such yarns into hosiery or fabric and which, if left in the fabric, would seriously affect any dyeing of such fabric and also which would not be desirable to have present in a finished product made from such yarns. The general procedure which is most satisfactory is to remove all such oils in the yarn before dyeing—then adding a known quantity of suitable oils, penetrants, or other assistants in dyeing as will enable the dyer to gain level work at a minimum of cost and then if necessary, add enough softening oils or fillers to the dyed product, to give the feel desired and weight desired to the finished product.

The make-up of the hosiery, other than that made of rayon is usually cotton or mercerized cotton and this in itself does not introduce any complicated factor in scouring or dyeing. However, if tram silk, wool or linen are present in the combination, more variables are introduced and we have an entirely new problem confronting us. Since we are dealing only with rayon-cotton combinations, such possibilities will be left out because they would call for an entirely different treatise.

To begin with the greatest of all raw materials, we must consider our water supply. This should be as near a constant, so far as hardness and composition is concerned, as is possible to obtain. While it is possible to dye hosiery in water which is not of zero hardness, best results are obtained when such a condition exists; and by always having zero hardness water, we eliminate one more variable in which all dyehouses abound. We have found after many years of careful work and study that, for best results where a variable supply is used, the preferred method is to keep the raw, filtered and softened water at a predetermined hydrogen ion concentration and then vary this in our actual dyeing and scouring operations, to meet the conditions of alkalinity which we desire.

The Importance of Good Water.

In case the water supply comes from a municipal plant or from a source which is beyond our control to manipulate, we must take conditions in the water for granted and either by chemical methods or rule of thumb, handle such water in the way which gives us a minimum of trouble. Where raw water from a river or creek is handled, the common alum-soda ash treatment is the simplest and easiest controlled and by settling, filtering and softening, we can hold our water nearly uniform throughout the year regardless of dry and rainy weather which might affect the supply. Whether we treat our raw water or use it from a previously treated source, the ideal manner is to soften such water to less than one-half grain hardness by use of a water softener. The desirable type being those using the Zeolite mineral which removes practically all the hardness in water by replacing the calcium and magnesium with soluble sodium salts. In cases where no softener unit is available, the procedure would be to find out the nature and constituents in the water and make such corrections as are necessary to remove the bulk of the trouble-producing elements. This phase of water treatment can not be discussed in a paper of this kind because each source of supply would present an entirely different treatment.

In general let me say that the materials to use in scouring and dyeing rayon-combinations depend

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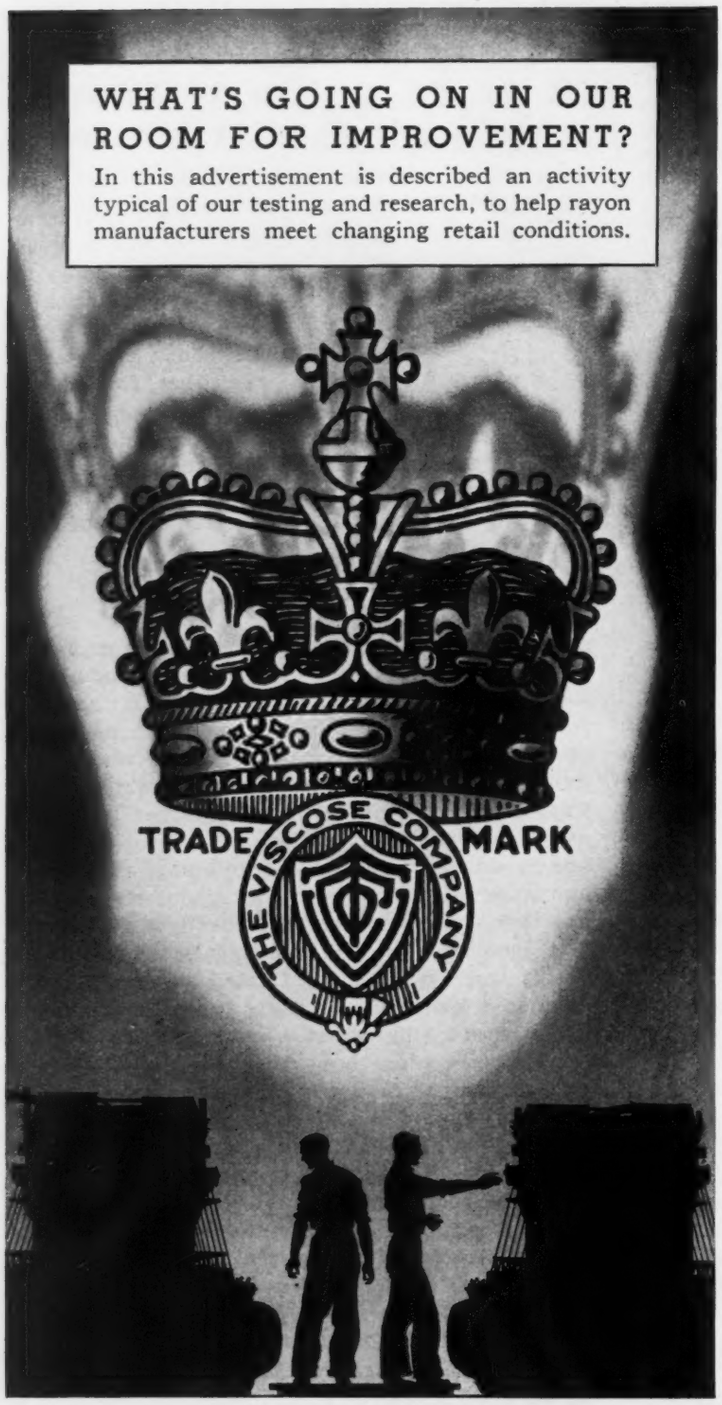

WHAT'S GOING ON IN OUR ROOM FOR IMPROVEMENT?
In this advertisement is described an activity typical of our testing and research, to help rayon manufacturers meet changing retail conditions.
TRADE
THE VISCOSE COMPANY
MARK

EVERY rayon manufacturer of any standing has an experimental department in his plant.

But one of the drawbacks to small-scale production of yarn is the fact that it doesn't pan out in large-scale operation. Many a new idea is born in a test tube only to die in the mixing vat. Increased proportions have decreased the success of the experiment.

On one of our Viscose properties we have built a complete "plant within a plant." This experimental shop is as large as the whole factory of some of the smaller rayon manufacturers. The test-work developed here can be stepped-up successfully in any one of our six great properties. And from the knitting and weaving we do in this same proving plant, we know just how you can use our yarns for yourself, in either large-scale or limited production.

There's decided satisfaction in dealing with a house that understands your rayon textile problems. And we really welcome your inquiries . . . we're geared-up to answer questions.

THE VISCOSE COMPANY
200 Madison Avenue New York City

"The Crown is your buying-guide to good rayon"

CROWN

RAYON YARNS

entirely upon the nature of the water used. For water which tests less than one-half grain hardness per gallon, I have found that a soap and alkali combination is most desirable from a standpoint of efficiency and economy but if the water shows a greater degree of hardness than that mentioned, the question of using soap becomes acute and from experience, I have found that a good grade of a well sulphonated castor oil will stand up much better under such conditions than ordinary soaps. There are, however, many soaps or soap mixtures on the market now which contain solvents, penetrants alkali or emulsifiers, which do exceedingly well under adverse conditions and they must be given serious thought in our discussion. Several such good commodities are available and they usually contain enough soap and solvents to do a thorough job of scouring the hosiery and at the same time hold such oil and foreign matter in suspension until it can be removed by draining and flushing the scouring bath. These products also leave the goods with a clean odor and excellent feel which is of vital importance in a well dressed box of hosiery. The economical side of using a good scouring agent is that it does not harshen the goods and we need not load the finished goods with an excess of softening material because the goods have their own natural feel which cannot usually be bettered.

Procedure and Methods of Scouring.

The usual procedure in processing rayon hosiery, is to scour at about 170 degrees F. for fifteen or twenty minutes with enough of our chosen scouring material to remove the oil present in the goods. The percentage of this to use is dependent upon the oil content of the rayon to begin with, and this should be determined fairly accurately before starting any batch of goods through the mill. If we underestimate the oil content of the rayon, the excess oil may not be removed and maybe later stain the bands and boxes after storing; if we overestimate the true oil content, we waste good materials and this is a factor to be avoided in times such as the present.

The problem of removing oil from rayon which is added to it to facilitate its handling, winding or knitting is important and this problem is complicated by the fact that "oiling solutions" are of a variable nature and amount. Such oiling compounds may contain saponifiable animal oils, unsaponifiable hydrocarbon or petroleum oils (mineral oils) or both classes either as natural oils or saponified by use of agents like alkalis, soaps or special organic compounds. In addition to the oils, these solutions may contain oils and fats and soaps and waxes and other things.

Oils may be determined by the scouring tests using soaps but the most convenient way is to employ extraction methods with organic liquids or solvents. The extraction methods may be carried out either by hand method or in special apparatus called oil extraction apparatus.

After scouring the goods, it is well to flush the bath with fresh water, being careful not to chill the bath too much, which might break down the emulsion or suspension of oils and fats in our bath. After this, we can drain the tub and wash the goods with warm or hot water to remove that part of the scouring materials and oils removed which hang in the goods. Ordinarily, one wash is sufficient if properly done.

Dyeing the Hosiery.

The goods are now ready for dyeing. The most suitable method is to start the bath at a low temperature, having added either soap, sulphonated castor oil, a penetrant or other dyeing assistant to the bath. The temperature is slowly raised and after it has reached the maximum for this class of work, usually 200 degrees F., we add slowly and in several portions, either glauber or rock salt. The type of salt depends upon the shade, nature of the dyestuffs used and in some cases upon the type of rayon we are dyeing. Usually twenty minutes running after we start salting will give us good exhaustion of the dyestuffs in the bath and we can sample the goods to see if we are on the shade or if an addition of dyestuffs is necessary to match our sample.

Let me add at this point that what has already been said with regards to scouring materials, scouring temperatures and dyeing temperatures and dyeing assistants, holds for all rayons except those coming under the class of acetate yarns. These yarns present a different problem which will be discussed later.

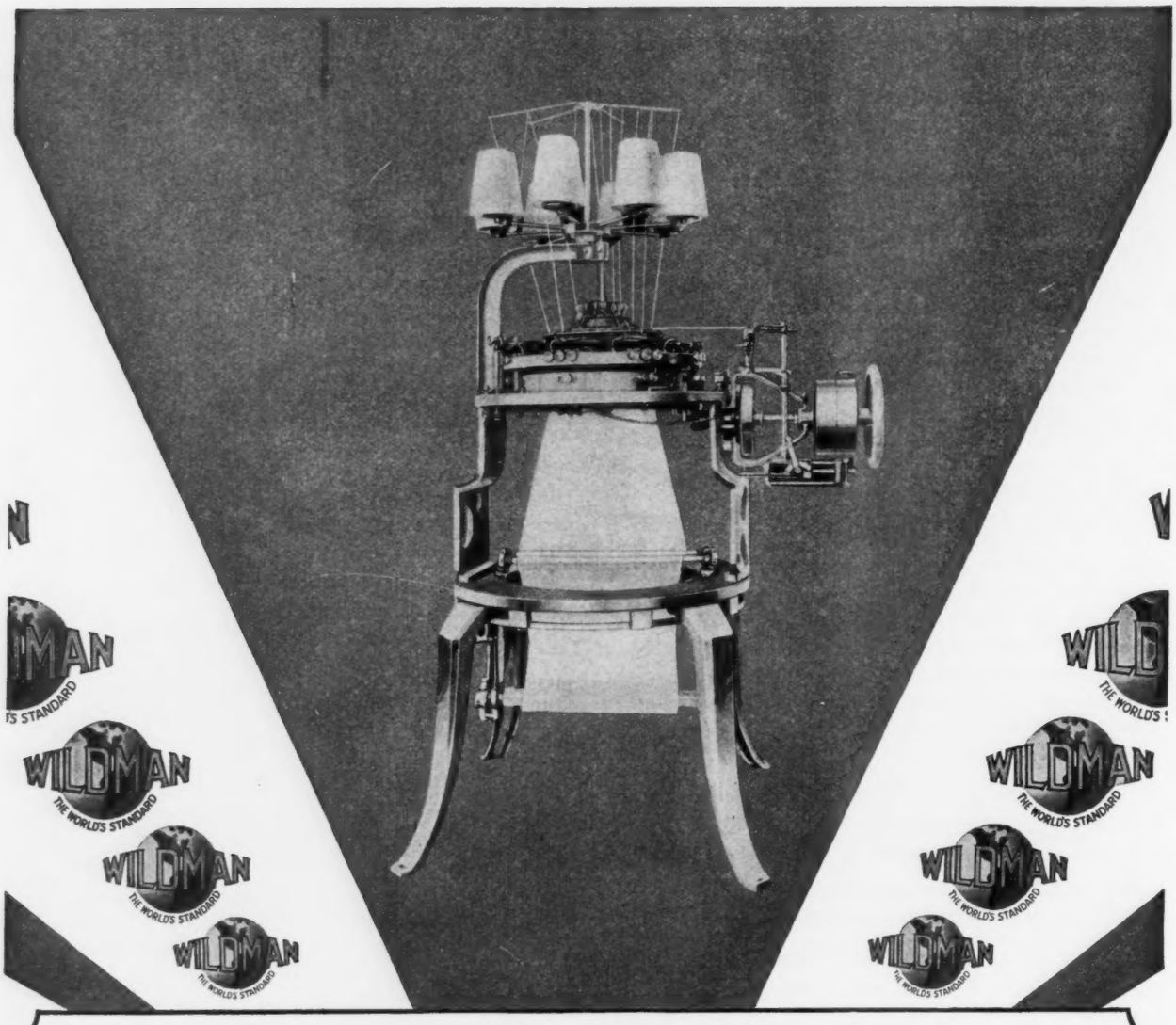
Slow Exhausting Dyes Preferred.

To list the dyestuffs to use in dyeing rayons would be a great task because of the great number but in general it is better to choose only those which exhaust slowly, a trait which usually accompanies level dyeing dyestuffs. This can be determined for any specific dyestuffs by a practical dyeing and conclusions as to suitability can be drawn from such tests which can be made in most any dyehouse. It is interesting to note that usually the dyestuffs with large atomic weights are most satisfactory for dyeing rayon level, if we care to go beyond ordinary means of determining the suitability of dyestuffs for rayon dyeing, but in most cases such elaboration is cut of the question and we depend upon the little practical tests which any dyer can make in a beaker or bucket.

Dyeing the Viscose Yarns.

It is always desirable to choose the least number of dyestuffs to make a given shade and experience has shown many dyers that if shades can be made with three colors, the work and time it requires to compound formulas to meet such conditions, is well spent because of the ease with which all formulas can be handled especially if additions are necessary to bring the batch up to shade. The choice of whatever dyestuffs we use must of course be governed by the requirements as to fastness to light, washing and perspiration, ease with which they may be stripped out and other factors mentioned earlier in this paper.

Getting back to the four classes of rayons which



The Wildman Body Machine has proved best for Rayon. Operates at lower cost with less needle breakage — no raveling waste — imperfections reduced to a minimum.

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
THE WORLD'S STANDARD

WILDMAN
SPRING NEEDLE BODY MACHINE

may be found in a hosiery dyehouse, let us consider the viscose type rayons. This rayon is of the regenerated cellulose type and usually does not present any great problem in dyeing if scouring has been complete and if our choice of dyestuffs is suitable for this type of rayon. The direct or substantive dyestuffs are used almost exclusively for this rayon but we must watch to see that we choose only those colors which dye level with a union between the rayon and cotton part or mercerized portions of the hosiery. The viscose rayons today are strong and usually do not have to be handled in any special manner except that we must remember that all rayons lose in tensile strength when wet and due consideration should be taken of that characteristic. There are the so-called "bright", "semi-dull" and dull viscose rayons but none exhibits any special or different problems from the other.

The Nitro-Cellulose Group.

The nitro-cellulose rayons like viscose are of the regenerated cellulose type and dye with the direct or substantive dyestuffs but they have the added property of actually being dyed by some of the acid dyestuffs, a property which can be used to advantage in dyeing a union between a nitro boot and cotton or mercerized heel or toe. Not all acid colors dye this rayon and before attempting to use the information given, it would be well to experiment to see just which acid colors dye and which do not dye the nitro rayon. When using rayon of this kind, it is well to remember that a careful choice of direct dyestuffs is necessary when dyeing in an alkaline bath. The writer is author of an original treatise upon the problems encountered in dyeing the dull luster type of nitro rayon and this work was prompted by trouble experienced with certain substantive dyestuffs used in dyeing this type of yarn in an alkaline bath. The story in short was that due to impurities in the rayon itself, in the form of complex nitro compounds and in the presence of alkalis, certain direct dyestuffs were reduced or where they were not actually reduced, they were totally destroyed in the hot alkaline dyebath with the result that strange things happened in the dyebath so far as shade was concerned from definite formula. My advice when dyeing this rayon would be to scour in an alkaline bath, wash thoroughly and dye in as nearly a neutral bath as possible to avoid any reduction of dyestuffs. Dyeing and scouring temperatures and salting in general, are the same as for viscose type rayons.

The Cupra-Ammonium Rayons.

Cupra-ammonium rayon is a regenerated cellu,-lose type, the most commonly known in this country being Bemberg. It is dyed with the direct colors when used for hosiery. The scouring procedure used for viscose rayon can be used for this type as well as the dye'ng procedure. It is suggested that this type of rayon requires no salt while dyeing but it has been my experinece that salt is quite necessary to gain good exhaustion of the dyestuffs from the bath and also to assist in dyeing the cotton or mercerized portions of the hosiery.

The Acetate Silks.

Cellulose acetate silks must be considered now and here we have an entirely different synthetic fiber to deal with. It is not a regenerated type of cellulose but actually cellulose combined chemically with an acid radical and its behavior with ordinary scouring agents, dyeing methods and dyestuffs is radically different than other rayons. This type of rayon is sensitive to alkali, and high temperatures when wet and to many solvents and penetrants which are used to good advantage in scouring and dyeing other types of rayon. Ordinarily, the dyestuffs used to dye other rayons will not dye the acetate yarns, but in many cases there are impurities present in the direct colors which stain acetate cellulose, and we must choose those colors which we know leave the acetate yarn clear. To dye the yarn itself, it is necessary to use a special line of colors, made expressly for this yarn and since this fiber has become commercially important, we have a large number of dyestuffs to choose from in this special class. Most of these special acetate rayon coloring matters do not dye and many do not even stain plain or mercerized cotton. With the other fibers, particularly pure silk, this is not true, bue we need not consider such cases in this discussion devoted to rayon-cotton combinations.

The usual scouring procedure for acetate yarns is to use soap or one of the several patented scouring materials on the market, to remove the oils and foreign matter. In no case should the temperature of our bath exceed 180 degrees F., and lower temperatures are desirable. The reason for this is that we may destroy the luster of the yarn if too high a temperature is used. Alkali should be used with caution and if used at all should be used at reduced temperatures. Strong concentrations of alkali and high temperatures cause the acetate rayons to undergo saponification and when this takes place, we no longer have a yarn with its original characteristics but one which approaches ordinary viscose rayon in its dyeing properties but very much deficient in feel and appearance. We must also avoid the use of any solvents either as such or in combination with soaps or soluble oils because they actually dissolve or change the chemical form of acetate rayons when used with it, some of them even in very small concentrations. I could give a list of such compounds to avoid but the safest way is to inquire either from the manufacturer of the rayon or the maker of the solvent itself as to whether or not it is safe to use.

I might mention hastily that it is wise to avoid the use of those solvents, penetrants, scouring and dyeing assistants which contain chlorinated hydrocarbon even in small percentages.

After scouring our acetate-cotton hosiery, the dyeing is carried out at low temperature, using the

(Continued on page 90.)

Elasticity

A PRIME REQUISITE IN DURABLE HOSIERY

Elasticity means more than a trifle to the manufacturer of women's hosiery and knitted undergarments. Lustrous B. & C. Mercerized Yarns impart the proper elasticity and strength to knitted silk constructions—meaning a freedom of movement for the wearer without a sacrifice of beauty in the garment.

Use B. & C. Mercerized Yarns as a foundation upon which to build your hosiery. It will add to the prestige of your product and show up in your profits.

B. & C. running qualities are unexcelled.

Soft bleached yarns made especially for underwear. For prices and samples write nearest representative or direct to factory.

B&C

YARNS

MERCERIZED • NATURAL
GASSED • PRESHRUNK
BLEACHED • COLORS

BOGER & CRAWFORD

J. and E. Venango Streets, Philadelphia, Pa.

FRENCH CAMPBELL, JR., CO.
417 Provident Bldg., Chattanooga, Tenn.

DONALD R. JONAS
Lincolnton, N. C.

WILLIAM R. RIETHEIMER
222 W. Adams Street, Chicago, Ill.

Wants Formula for Stripping Hosiery.

Mills are urged to supply to this department details of the methods they use for this purpose.

EDITOR COTTON:

For some time past we have been having considerable trouble with our re-dyes in our all-silk full-fashioned hosiery. After the color has been stripped out, and the stockings have been re-dyed, they are often stiff and harsh feeling. Also the silk, although it is high twist, has a very glazed appearance and is not as strong as it was.

We will appreciate it very much if some of your readers will give us a good formula for stripping the color out of goods to be re-dyed.

CONTRIBUTOR No. 6156.

Yarn Purchasing and Receiving Records.

A simple method of keeping accurate records on yarn purchases and use.

EDITOR COTTON:

As a reader of the "KNITTING KINKS" department of COTTON, which is a source of many helpful, inexpensive ideas from subscribers, I take pleasure in submitting some ideas on handling yarns bought, received, and used.

Form A herewith, from our Kardex file, is the office record of yarns received. There is a card for each count of each grade or color of yarn. On this card is a record of the amount purchased, from whom, delivery date, style bought for and price.

Yarn receipts are entered in a receiving book, and from a copy of this the entries are made on Form A and invoices checked.

RECORD OF YARNS

DATE	ORD. Nº	FROM	REF.	LBS.	FOR STYLE	DEL'Y	RECD.-PRICE

FORM A

Upon receipt of the yarn, tickets B and C are filled out, the larger, B, being placed on the case, and C on a board in the mill office. When a certain kind of yarn is wanted, the yarn boy is given a small ticket,

CASE Nº____ GROSS____ TARE____ NET____

KIND OF YARN____

FROM____

FOR STOCK Nº____

DATE USED____

FORM B

C, for a certain case of yarn, which he matches with the card B on the case, marks date opened on each, and turns them into the office for further records if desired.

With this system, yarn is not opened except for inspection until needed, and the small ticket C is the

O

YARN____

FROM____

CASE____

WEIGHT____

REC'D____

FORM C

key to its success since the absence of all such tickets from the pin of a certain kind of yarn on the yarn board indicates that that count and kind of yarn is out.

Inventories of unopened yarn are readily taken from the tickets C on the board, and checked with cases in the yarn stock room, and the opened yarn in the knitting room added to this gives a complete yarn inventory. Prices, total shipments and balance on

order are obtained from the Kardex card file. If desired, the ticket C may be used after opening the case to which it applies for an entry against stock on the Kardex card. Also, card B, if made in duplicate, may be utilized by using the duplicate for a receiving record, the original going on the case, which identifies this case with the ticket C when the case is opened.

The three forms furnished herewith are the foundation for a simple and complete yarn record system adaptable to any mill's requirements, large or small.

CONTRIBUTOR No. 6109.

A Discussion of the Parts of Scott & Williams Knitting Machines.

(This continues the discussion of the parts of Scott & Williams knitting machines, as illustrated on the plates in the manufacturers' catalog. The first article, appearing on page 126 of the October issue of COTTON, *described and discussed the parts appearing on Plate I, Plate II, and Plate III, in the catalog, and the present installment covers those on Plate IV. The series will continue by covering succeeding plates in order. A similar series is planned, for later publication, on the parts of other knitting machines.—The Editor.)*

Plate IV.—Scott & Williams.

EDITOR COTTON:

In this letter I will continue my discussion of the parts of Scott & Williams knitting machines, by taking up those illustrated on Plate IV in the catalog. Let me repeat that I would welcome further discussion of any of these points by your readers. The numbers in parentheses after the names of parts are the numbers of the parts as used in the catalog.

The drive, intermediate and loose pulleys (6018, 6017, and 6016) respectively, require little attention other than a thorough lubrication at regular intervals. Frequently they become badly worn through abuse or carelessness. In many cases loose pulleys run for weeks day and night when certain machines are not being used, and consequently they run without oil. In such cases it is good practice to remove the belts on idle machines and save unnecessary wear on both belts and loose pulleys.

The drive pinions (6323) should be renewed when the teeth become sharp, for if they are left to run until the teeth actually break out, other damage is usually done and the cost of a new pinion is thereby increased.

The pulley crank stud (6590) should be kept tight and the oil in this stud should not be overlooked. Set the pulley crank (6019) so its position in the slot of the right clutch pinion (6013) will be alike on all machines. This is especially important on Models K, H H, and R I machines in connection with spotting the cylinder and getting the dial set properly in relation to the cylinder, and in spotting the cylinder when it is necessary to transfer a fancy designed top on a B-5 or B-3 machine making infants' goods or misses' anklets.

The left main bushing (6009) and right main bushing (6014) should be lubricated regularly with a heavy oil, usually termed liquid grease by most oil companies, at least as heavy as automobile motor oil and preferably of a non-fluid type.

The left clutch pinion (6010) should be renewed when the teeth become sharp in order to avoid lost motion, especially while the machine is reciprocating. Very often both the right and left clutch pinions are severely abused by poor timing and careless adjustment of the various parts that control the shifting of the clutch (6011). The clutch (6011) should shift far enough to the right and left to keep it flush against the right and left pinions so that the clutch key (7000) will be in the full depth. If this adjustment is not right there will be undue wear on the right and left pinions, the clutch key and other shifting mechanism.

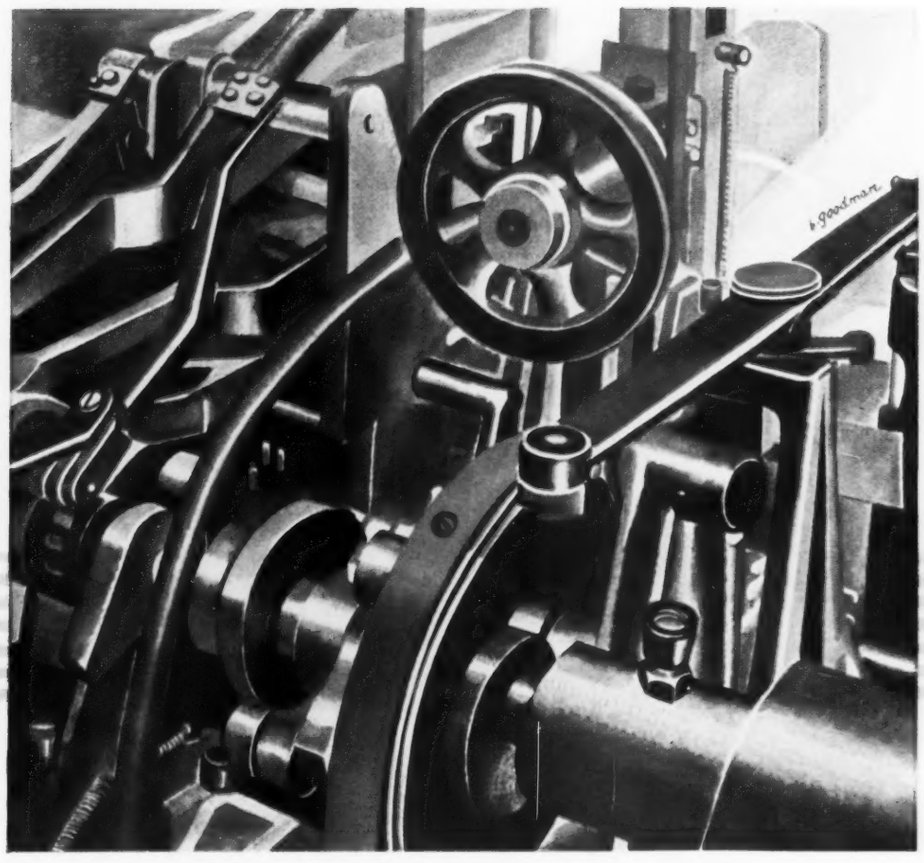
In many cases it is impossible to get enough adjustment from the clutch fork roll stud (6556) so as to make a full depth shift in both right and left positions. A simple way to overcome this difficulty is to make a special clutch fork roll (6555) slightly larger in diameter and thus get the clutch key full depth into the pinions. This simple remedy will be found useful especially on old machines. When a larger roll is put in, be sure to watch the machine for one complete sock or take it through the various moves by hand and check each shift to be sure the clutch does not bind tightly against the pinions.

Frequently the clutch spline (15702) will get loose. This is caused by the spline pin (964) working loose or being broken off. It should be attended to immediately. Keep the bevel gear set screws (15128) tight at all times. A worn ratchet pawl lifter plate (8012) can cause a lot of trouble and the remedy naturally is a new plate. The plates are not expensive but the damage they can do is.

A simple way to keep the pawl lifter plates from wearing and doing other damage is to turn the belt shifter shaft clockwise far enough so that the weight of the ratchet pawl lifter will rest on the locating screw (6689). This adjustment will keep the plate (8012) barely off the plain chain links and it is easy to understand how the life of the plate (8012) is increased, for there is wear only when the plate passes over the lug links.

Tighten the belt shifter shaft set screws (15109) securely when the foregoing adjustment has been made. The ratchet pawl lifter gives very little trouble when properly located. It should be set so as to keep the lifter plate (8012) riding directly over the chain link lugs.

The belt shifter catch (7033) is not troublesome, however, it may become dangerous when badly worn. The writer recalls one case where an operator had her hand severely bruised because her machine started suddenly while she was transferring a top on a B-5 machine. The latch ring came down on her hand and in addition to bruising it, considerable damage was done to the needles, sinkers and transfer points, plus a loss of time. All of this could have been prevented, for we learned later that the machine fixer knew the catch on that particular machine was not holding the belt shifter as it should, but he did not think it would do any harm. This same fixer is *thinking* now, and

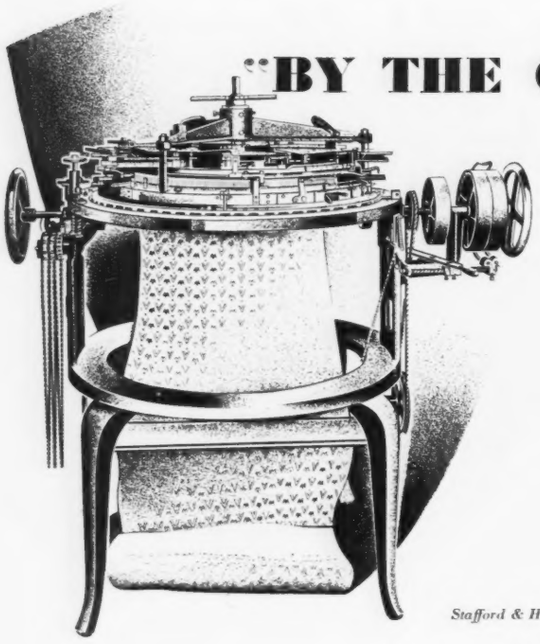


"Uniform, because they are made by machines." That is the story behind Torrington Spring Beard needles, in its simplest terms. In the making of these dependable needles, we reduce the variation factor to a minimum, by control that is mechanical instead of personal. And the uniformity is a definite satisfaction to those who use them.

TORRINGTON *SPRING BEARD* NEEDLES

Send your bars to the Torrington branch at 1640 Fairmount Avenue, Philadelphia, for a complete re-needling service

"BY THE COMPANY THEY KEEP"



Stafford & Holt Knitting Machine

Sweater by the Murray Knitwear Company

GOOD NEEDLES are part of the "groundwork" for producing fine knitted merchandise, on fine machines. When the Murray Knitwear Company makes the kind of attractive sweater illustrated, on a Stafford & Holt machine, the needles are Torringtons . . . known, and known favorably, "by the company they keep".

The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

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TORRINGTON *Latch* NEEDLES

watching the little things, which, after all, are really the big things.

The next discussion will deal with the parts shown on Plate V in the catalog and their adjustment.

CONTRIBUTOR No. 6138.

Opinions on Oil Versus Soap for De-Gumming.

Also, experiences with the one- and two-bath methods of dyeing silk hosiery.

EDITOR COTTON:

I read with much interest the question of "CONTRIBUTOR No. 6088" with regard to the use of soap or oil in de-gumming silk hosiery. He introduced also the question of one- or two-bath dyeing. This man pointed out that some mills use soaps exclusively for de-gumming; others use oil exclusively for de-gumming; while others use both; and he asked for a discussion of the question "Under what conditions and circumstances are oils preferable and under what conditions and circumstances are soaps preferable for de-gumming purposes, and why?"

After many attempts to develop a satisfactory method of one-bath boil-off and dyeing or of substituting a soluble oil for olive oil, we have come to the conclusion that the best olive oil soap is the most satisfactory method of de-gumming silk.

We prefer the best grade of olive oil soap for de-gumming rather than the so-called boil-off oils, chiefly because soap gives us a cleaner fabric. Boil-off oils are mixtures of soluble oils and alkali and as a class are more apt to damage silk than is soap. We use the two-bath method because we prefer to start our dyebath with clean goods rather than in a bath containing sericine, knitting oils and other foreign matter as is the case in the one-bath method.

CONTRIBUTOR No. 6095.

EDITOR COTTON:

Your "CONTRIBUTOR No. 6088" asked your readers to discuss the subject of using oils or soaps in de-gumming silk hosiery.

It has been my experience that the one-bath method, using de-gumming oil, is the best all-around method for several reasons. It requires practically one half of the running time which is the most important step toward eliminating chafing or work marks. The quicker we can de-gum and dye the better the condition of the silk and the better the feel.

De-gumming and dyeing in one bath gives more uniform work and enables the dyer to shade his batches with very little possibility of uneven work. This feature in itself reduces the amount of re-dyes to a great extent.

I have found this to be true on 7-thread silk with mercerized top and foot and also on 4-thread all silk, in fact on all grades of silk that I have dyed. I am running 85 dozen batches and I average running time from start to finish in from 2 to 2½ hours. This is much quicker than can be done in the two-bath method and requires less handling as well as increases production.

The finish on goods dyed and de-gummed in the one-bath has proven satisfactory, unless some particular finish is required which can be obtained by using any one of the number of finishes on the market.

CONTRIBUTOR No. 6096.

EDITOR COTTON:

In answer to the question of "CONTRIBUTOR No. 6088" as regards soap or oil for de-gumming hosiery, our experience has been as follows:

We de-gum and dye in the one bath, both chiffon and service weight hosiery. A good grade neutral olive oil soap is used for de-gumming, which we believe removes the sericin with the minimum of action on the fibroin. While the hose are left in a softer and more lustrous condition with the use of a soap than with a de-gumming oil, increased twist and de-lustering has taken care of this objectionable feature. As to dyes, we have been able to get a combination that will give a good union between cotton and silk, dye evenly, and still possess desirable fastness to washing.

Another advantage of using a good grade of olive oil soap is that even with an excess of soap in the de-gumming bath there is no danger of tendering the fabric. In the case of an oil there is danger providing an excess is used; at least we found this to be so in one of the oils we tried.

The inquirer states that by only partial de-gumming, the fabric is left firmer and it has more body to it. This is logical, but we are wondering about the danger of gum spots after dyeing, which would cause no end of trouble. In most de-gumming oils, one of the constituents is sodium silicate or water glass, which gives the fabric a firmer feel and less luster; we are inclined to think that your contributor is mistaking this for a small percentage of gum left in the fabric.

In conclusion, I will say that we are strongly in favor of soap for de-gumming both chiffon and service weight hosiery.

CONTRIBUTOR No. 6097.

EDITOR COTTON:

I am glad to comment on the questions of "CONTRIBUTOR No. 6088" who asked for a discussion as to the use of soap or oil for de-gumming silk hosiery.

For years we were firm believers in the two-bath method of dyeing for all hosiery, using olive soap for de-gumming. With the introduction of specially prepared sulphonated castor oils, we gradually changed to their use for de-gumming silks, using an oil with a pH value of 8.1 to 8.3 in connection with a certain percentage of silicate of soda. The advantage in this process lies in the fact that the time for de-gumming is reduced to half, thereby saving the fiber from undue friction and strain. The dyeing under these conditions is done in a neutral bath containing sulphonated castor oil pH 6.2 (approximately) using a desirable finishing compound.

During the last year and a half we have put into practical and satisfactory use the one-bath method for all hosiery, obtaining results far superior to

anything known in the past. We use a sulphonated oil pH 9.3 containing a solvent and soda ash. Goods, oil and dyestuffs are entered in the order named and boiled for about 30 minutes. Then Glauber salt is added to the bath and the sampling is done as usual. Protection of fiber, saving of time and simplicity of method are the outstanding advantages. Furthermore, practically no finishing compound is necessary, the sericine in the bath acting as a filler. Penetration on heavy goods with cotton tops and feet is better than with the old method.

CONTRIBUTOR No. 6099.

Lubricating Full-Fashioned Machines.

Finds a special lubricant for greasing cams and cam rollers.

EDITOR COTTON:

Some years ago, when we began the manufacture of full-fashioned hosiery, one of the first problems to develop was the proper lubrication of the machines. At that time, all of the cams were cast-iron and the cam rollers were soft steel. When one of the castings began to cut, it was almost impossible to stop it. We used to keep an oil can convenient to a cutting cam, and pour oil on it at frequent intervals. but the powdered metal would continue to deposit on the floor pan. The trouble with the oil was that it would not stay on the cam. The pressure of the roller against the cam would press the oil over to the edges, and when the machine was standing idle the oil would drop from the cam.

We then tried an ordinary cup grease, but this too would press off to the edges in a few revolutions and leave the face of the cam without an oil film.

Then it was that we discovered a cup grease with a tacky elastic character yet very slick and having wonderful lubricating qualities. We asked the manufacturer of this grease to make it up for us in a liquid state, thin enough to pour like thick syrup, and we applied a good coating of this to the cam while in motion, with a small paint brush. The elasticity of this grease would cause a film of grease to follow the edge of the roller when it turned and when the cam shaft shifted in narrowing this film would be laid across the face of the cam. In this manner the greasing became automatic after the application.

Then, because of the tackiness of the grease, it did not drop from the cam while not in motion. One free application of this grease to a cam is sufficient for 10 hours operation, which makes it a very economical lubricant and prevents the waste oil in the floor pans, which has to be mopped up.

We clean all cams thoroughly once a week and with the use of this liquid grease the cams wear almost indefinitely.

This same grease may be used very successfully in the oil pans of the coulier cams, if care is taken not to fill the cams too deep. The cam should just touch the grease slightly and a little extra grease should be added when the cam fails to touch.

Our next problem was a bearing oil. A light spindle oil will run out of the hand wheel bearings and run down the shaft and get on the work and besides, it does not give the proper lubrication, as the bearings run hot and frequently stick or score on a new machine.

Some of the compound oils are oftentimes used, but we find that a good grade of heavy-bodied engine oil is highly satisfactory. The heavier oils may be applied more sparingly, which will prevent leakage from the bearings and still give ample lubrication. This oil should be used on all the heavy bearings.

It has become the general practice to use a light highly refined clear stainless machine oil for the needles, sinkers, carrier rods, narrowing rods and all light bearings on the machine. The specifications for such an oil have been adopted by the National Association of Hosiery and Underwear Manufacturers, and this type of oil may be obtained from several manufacturers.

Applying the Lubricant Properly

After the proper selection of greases and oils, the next big problem is to get the knitters to apply them correctly. It is an admitted fact that more oils are wasted and mopped up under the machine than are consumed by the machine. It frequently occurs that an oil hole will be clogged up and the oil never reaches the bearing.

For this reason, the knitter should be supplied with the right kind of oil cups to suit the type of oils being used and the location of the parts to be oiled. It stands to reason that a different oiler should be used for the light stainless oil and the heavy engine oil.

In addition to these precautions, it is necessary for the overseer or fixer to instruct the knitters with reference to the oiling of the machine and to inspect the machine every week to see that this very important duty is not being neglected.

CONTRIBUTOR No. 6113.

Scouring and Dyeing Rayon-Cotton Hosiery Combinations.

(Continued from page 83.)

same precautions as when scouring with regard to dyeing assistants. The dyestuffs to use depends upon what is wanted in the finished hosiery—some is dyed with the acetate rayon left white, others with the acetate dyed in contrasting colors to the rest of the hosiery and in still other cases, the fiber must match the shade of the rest of the goods. Each variation calls for a different selection of dyestuffs and we cannot go into this detail in this paper.

After dyeing all the different types of rayons in the form of hosiery, the final finish is left up to those concerned in placing the product before the trade. The demands are different and many and it is possible to give the goods anything from a harsh scroopy feel to a soft velvety feel. My own experience has been that in most cases, if the goods have been scoured properly, dyed correctly and without abuse, the natural feel of the rayon itself is most desirable.

Figuring Pulley Speeds and Diameters on Banner Machines.

EDITOR COTTON:

The following questions which have been submitted to "KNITTING KINKS", and the answers, are presented herewith for the benefit of those readers who might be interested.

(Editor's Note: Readers are urged to send their problems to the editor for presentation in these columns for answers, which if helpful to only a few, serve their purpose and re-assure contributors of ability to teach and learn.)

Question: With a 7-inch driving pulley on a Banner machine, and a cylinder speed of 240 r.p.m., and a motor of a given speed (say 1,200 r.p.m.).

How must the diameter of the motor pulley, drive shaft speed and drive shaft pulley be figured?

If chain drive, what size motor sprocket and drive shaft sprocket, and how must the diameter of the sprockets be measured (bottom center or top of teeth)?

Answer: The pulleys of the machine are 7-inch in diameter. The left pulley is the top speed driving pulley. The center pulley is the slow speed drive, and the pulley on the right is the idle pulley. In order to obtain normal cylinder speed of 240 r.p.m., the pulleys of the machine should run 168 r.p.m. This gives a cylinder speed of 240 r.p.m. when the belt is on the left or high speed pulley, and 168 r.p.m. when on the center pulley.

This ratio of high speed pulley to cylinder speed is 210 r.p.m. left or high speed pulley speed to 300 r.p.m. cylinder speed. The center or slow speed pulley is the same as the cylinder speed, 210 to 210, since they are geared direct.

With a 7-inch diameter machine pulley, and 168 r.p.m., the drive shaft pulley should be at least 7-inch in diameter and that makes the drive shaft speed 168 r.p.m.

The formula for speeds is: Motor drive shaft speed in r.p.m. (A) $\times$ diameter of motor pulley (B) = driven shaft speed (C) $\times$ diameter of driven shaft pulley (X)

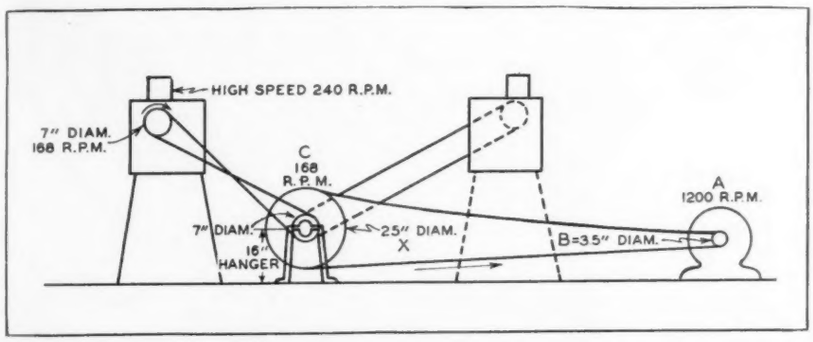
A = Motor speed, 1,200 r.p.m.
C = Driven shaft speed, 168 r.p.m.
X = Driven shaft pulley diam.
B = Diameter of motor pulley (use 3.5-inch)
$A \times B = C \times X$

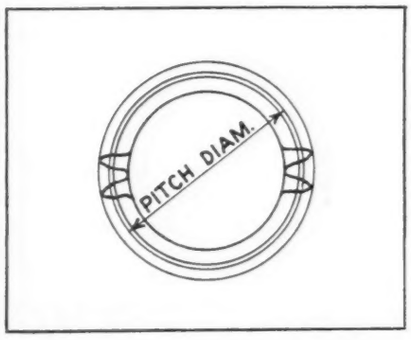
$$X = \frac{A \times B}{C} = \frac{1{,}200 \times 3.5}{168} = 25\text{-inch} = \text{the driven shaft pulley diameter (see sketch).}$$

The tight side of a drive belt on the bottom as shown from motor to shaft is more efficient than on top. This necessitates a cross-belt on one row of knitting machines and straight belt on the other.

Desired answers to the second question, as to measuring the diameter of sprockets on chain drive, may be obtained by substituting gear diameters for number of teeth in each gear for pulley diameters in the formula. Gear diameters are figured from the pitch diameter or the diameter of a circle just outside of a circle through the center of the teeth (obtainable from gear supply houses; see sketch).

CONTRIBUTOR NO. 6111.





EDITOR COTTON:

"CONTRIBUTOR NO. 6087" desires pulley speeds and diameters for a Banner cylinder speed of 240 r.p.m.

The following relations of size and speeds of driving and driven pulleys applying to all such problems:

Call driving pulley D and driven pulley d. If the number of teeth in gears is used instead of diameter, in these calculations, number of teeth must be substituted wherever diameter occurs.

R = revolutions per minute of driver, r = revolutions per minute of driven.

(D = dr $\div$ R) Diameter of driver = diameter of driven $\times$ revolutions per minute of driven $\div$ revolutions of driver.

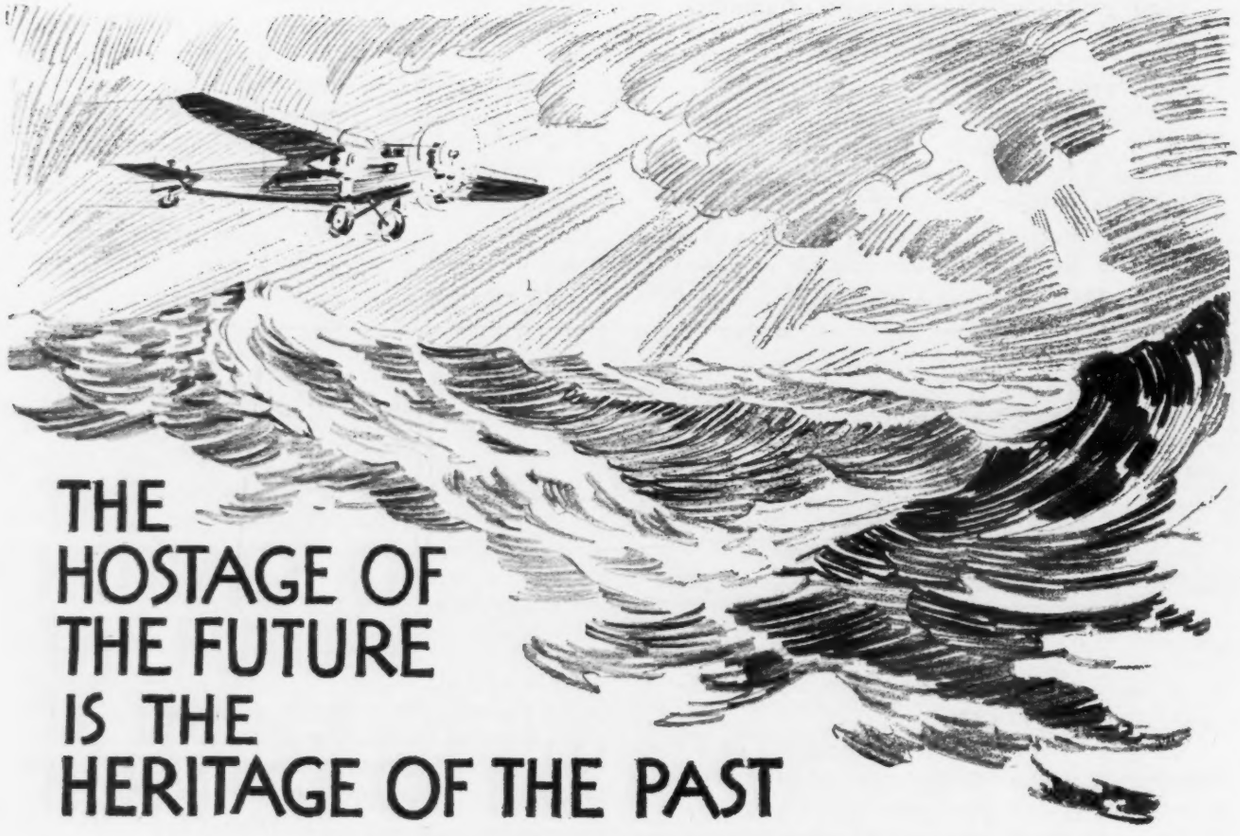
(d = DR $\div$ r) Diameter of driven = diameter of driver $\times$ revolutions per minute of driver $\div$ revolutions per minute of driven.

(R = dr $\div$ D) Revolutions of driver = revolutions of driven $\times$ diameter of driven $\div$ diameter of driver.

(r = DR $\div$ d) Revolutions of driven = revolutions of driver $\times$ diameter of driver $\div$ diameter of driven.

For 240 r.p.m. Banner cylinder speed, the 7-inch pulley speed equals 168 r.p.m. (ratio 300 cylinder r.p.m. to 210 left hand pulley). Using 7-inch pulley on floor shaft its speed would be 168 r.p.m. Assume driven pulley on floor shaft = 25-inch diameter and motor speed 1,200 r.p.m. For motor pulley size, D = dr $\div$ R = 25 $\times$ 168 $\div$ 1,200 = 3.5 inch.

Following this method all pulley speeds and diameters may be figured. CONTRIBUTOR NO. 6112.



THE HOSTAGE OF THE FUTURE IS THE HERITAGE OF THE PAST

IN every hour of stress, there is a Leonidas at some Thermopylae; a Horatius at some bridge; a Bayard defending some breach. In every stormy stretch of the economic sea, there is some Columbus sailing West to find the East of Progress. Every calamity breeds its unnoticed band of Carrolls and Lazears, consecrated to a course for the common weal.

The captains of prosperity are gone and, out of the ruck and wreckage, emerge new figures, new only because they have escaped notice in the turmoil that was reckless spending and heedless prosperity. They were there, cleaving to their course, with steady eye and firm hand, without deviating from those ancient, enduring virtues which have come up out of the past and are forever winging on so that there may be a better future.

To these pilots, the rare and simple virtues and the enduring qualities are a heritage held in trust for the oncoming generations.

We have seen these stalwart figures among the Makers of Goods, in the Banking Houses, in all the lanes of Business and Commerce and Industry, helping, guiding, reconstructing without fanfare, but with effectiveness. To them, we raise our hands in grateful salute.

JAMES E. MITCHELL COMPANY

Cotton Yarn Merchants for three Generations

122 CHESTNUT STREET, PHILADELPHIA

Methods of Operating Seamless Plants on Short Time.

EDITOR COTTON:

In a recent issue one of your contributors, "CONTRIBUTOR NO. 6115" brought up the problem as to the best way of curtailing production in the knitting department in a seamless mill. He asked: "Should we run a few hours per day and night or should we keep the machines running straight through until we have worked a given number of hours and then shut down until the next week?" He indicated that he prefers running straight through until the required number of hours are worked, pointing out that in doing this excessive starting-up periods, which would be necessary by running a few hours a day, are eliminated.

Curtailing production during months of dull business is a perplexing, disagreeable, yet necessary and important task. When considering any plans for the knitting department, the first thing in my mind would be to treat everyone—the company and all employees—fair and square. We all expect slow seasons, wondering how hard they will hit us and hoping that the boss will figure out some way to keep everyone busy at least a part of the time.

The production of the knitting department should by all means be divided equally between the day and night shifts wherever possible. The cost per dozen usually goes up during these periods due to the fact that certain time work jobs must go on whether 100 or 1,000 dozens are knit. This is especially true where the production fluctuates greatly during the wind-up of the business year.

From a knitting standpoint, "CONTRIBUTOR NO. 6115" has a good plan and a very good argument, provided it fits in with the finishing department and enables the finishing department to get the few small orders out on time. But, how can a rush order be filled and shipped by Monday afternoon if it comes in Friday morning, when everything is stopped? Supposing a few dozens are damaged in finishing on Thursday; they could be replaced Friday morning and shipped out Saturday noon or Monday if the machines were running part time every day. This would be impossible of course if the machines were stopped on Friday and Saturday.

Should the finishing department work the same days and hours as the knitting department? These and many other questions arise when the curtailment period comes and it seems best to iron them out before adopting any definite plan of production in the knitting end.

Mills selling through jobbers would perhaps need a different plan from the one used by those selling direct. Half-hose mills on ingrain goods might need a different system from the one applicable in ladies' hose mills. Everything would depend on how many dozen must be knit and when the shipment must be made.

In many localities, longer hours and four days and nights would be preferred by employees; in other localities, shorter hours and five days would be suitable. Hosiery making as a whole is a tedious job and, in my opinion, twelve hours is too long a grind; nine or ten hours would give better results in the long run.

We have very little trouble getting machines warmed up, when they stand idle for a time between shifts, except during cold weather, when it is difficult to keep the temperature up, and then mostly the trouble is on fine gauge numbers. In mills where temperature and humidity are controlled regardless of weather conditions the warming up problem is almost eliminated.

In many cases, a four-day and four-night plan works a hardship on the payroll department to pay off help when finishing up for the week, or it forces employees to spend time and money coming to the mill for their pay on Saturday. One season we tried a two-day and night plan at the beginning and end of the week and it worked out very satisfactorily. A mid-week rest should be an advantage especially since the curtailment period usually comes during hot weather when most of us have wiped away a lot of energy in the form of perspiration. On the other hand, a mid-week shut-down is disagreeable for the night run as it adds another mean Monday night to the week.

Personally, I am confident that "CONTRIBUTOR NO. 6115" has the best universal plan, especially since the employees like it. No doubt goods are going out on time and costs are within reason. Any reasonable plan of production in hours or days to be worked which would keep the mill intact and operating on a profitable—or should I say break even?—basis would be best for all concerned. During slack periods, profits are hoped for and losses are expected. It is by no means a minor task to curtail production and keep everything running smoothly and everyone satisfied.

CONTRIBUTOR NO. 6126.

EDITOR COTTON:

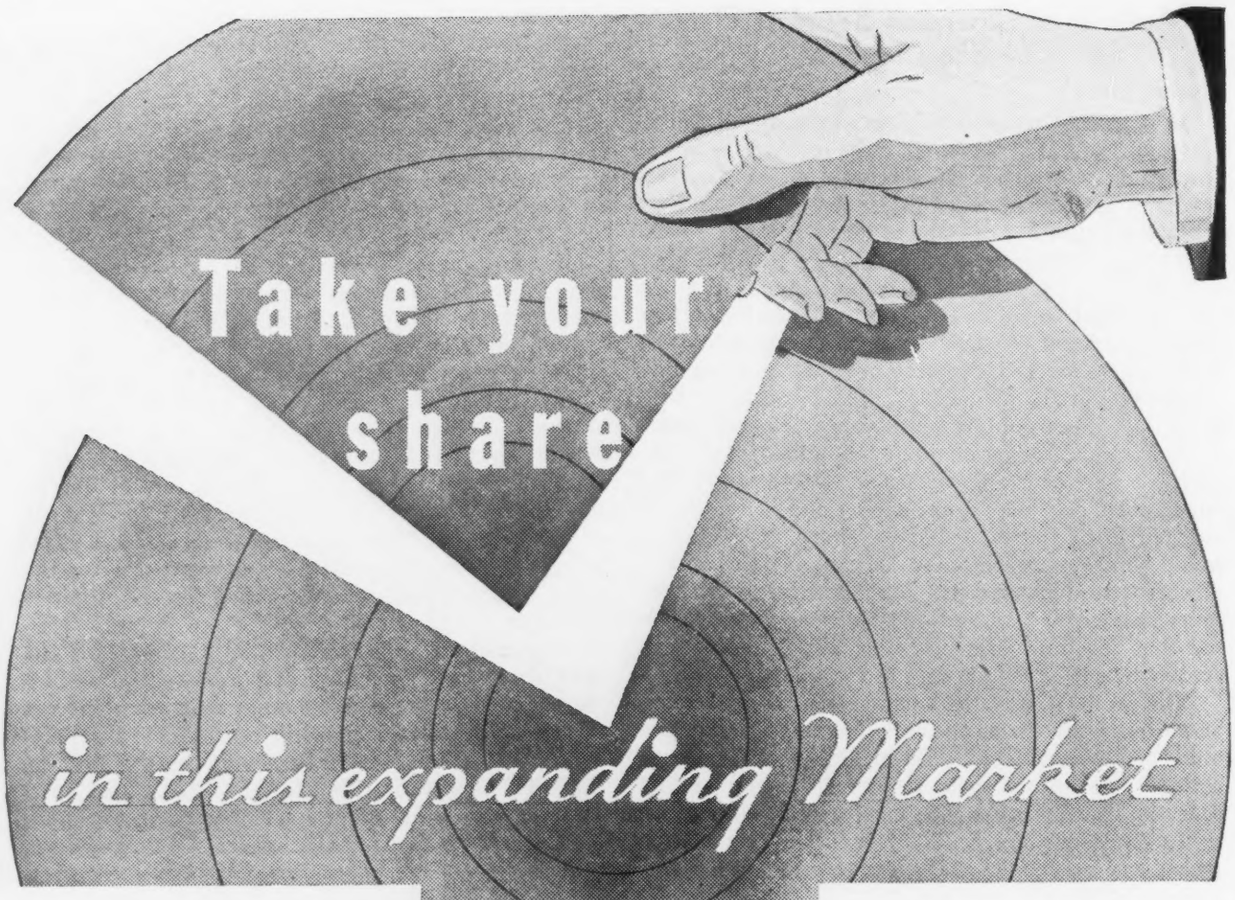
The readers of "KNITTING KINKS" have been asked to express their opinions on the different schedules of curtailed production, in a seamless hosiery mill, either during general or seasonable quietness.

Since a condition necessitating short time operation increases manufacturing costs as well as reduces the earnings of employees, such a discussion involves the efficiency, happiness and economic welfare of the owners, operators, operatives and their communities. This introduces us to the question from "CONTRIBUTOR NO. 6115."

"During months of dull business and curtailed production in seamless hosiery mills, the question arises, what is the best method for curtailing production in the knitting department? Should we cut off the night shift and run day only, or should we run each shift a few hours a day and night, or should we keep the machines running straight through until we have worked a given number of hours and then shut down until the next week?"

The views of "CONTRIBUTOR NO. 6115" were published along with the foregoing question in your July number; and for argument's sake, the writer merely broadens the discussion.

With the understanding that curtailed production is the result of insufficient demands, variously known as over-production, unstable prices, reduced



A market-expansion program voluntarily helped along by wise manufacturers and retailers is broadening the market for women's apparel of **CHARDONIZE** dull lustre yarn. It is attracting the attention of women in every section of the country, including the territory where your products are sold. This effort is succeeding *this year* because it is backed by a national acceptance no "expansion-program" could have created.

The national acceptance of **CHARDONIZE** was created by **CHARDONIZE** *itself.*

For years the unexcelled counter appeal of the *original* dull textile has been catching women's eyes, impelling them to buy. Its high resistance to wear and tubbing, and its irresistibly beautiful dullness that cannot come off or out have confirmed their choice. ● This season, more of the women in your territory than ever before are reaffirming, via the cash register, their preference for apparel of **CHARDONIZE**. They realize the importance of *yarn*. To get your share of their business, be sure your stockings, underthings, or dresses of **CHARDONIZE** are identified by the famous quality mark . . . "Made of **CHARDONIZE** Yarn."

Tubize Chatillon Corporation, 2 Park Ave., New York. Makers of viscose, nitrocellulose and acetate yarns.

It's in the yarn

Tubize

purchasing power, and disturbing economic conditions which run hand in hand with unemployment, it is self-evident that the provision for increased employment means broader purchasing power, with greater demand, more stable prices and a happier economic condition.

Employment provided for those out of work is the first step toward better times. Those now employed are afraid to spend their earnings for goods which would help solve the unemployment situation because they know not what day their fate may be cast among the increasing army of unemployed and will need all that can now be saved for existence then. Now, if those still employed won't spend some of their earnings over and above that necessary to live on to help relieve the unemployment situation, then it is time for those responsible for employment to make some other move besides decreasing their number of employees.

That's the why, and here's the how.

Say, in a hosiery plant, normal running hours are two shifts of 60 hours each, and under present conditions only sufficient business is available to run two 48-hour shifts. This is a curtailment from 120 hours weekly to 96 hours or 80 per cent capacity. On each shift, say 300 people are employed which gives 600 employment at 48 hours each per week. But, during normal production with more operations per unit produced which brought better prices, we assume 300 more employees were used by this concern.

Now, wouldn't it be better for all concerned to make three shifts of 32 hours each and employ 900 than to continue with the 300 out of work and having to be cared for by the others anyway? If it costs more, which it will, to run three shifts instead or two, then divide this cost among all even though whipping the child for its own good.

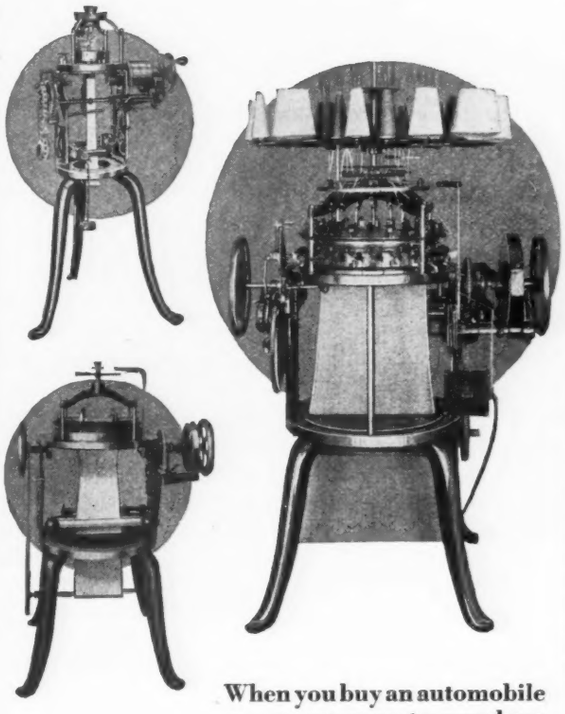
Starting up Monday morning and running straight through the 96 hours is most economical, as set forth by "CONTRIBUTOR NO. 6115" in his letter in the July issue.

Three shifts each of eight hours with a few minutes rest after the first four or five hours of each shift is a much less tiring schedule than 12 hour shifts, and is, in the writer's opinion, more efficient. Furthermore, with three shifts of trained help, increased production when demand warrants it is only a matter of decision and besides plenty of regularly employed trained help, even if on short time, is insurance against delay in deliveries.

The 900 employees each working eight hours for four days, will put in many more spare hours at odd jobs providing necessities for themselves in the way of gardening and other simple productive methods and spend much more for manufactured goods, than 600 employees working four days each of 12 hours with 300 not working. And, the sacrifices of the 600 for the 300, after they become mentally adjusted, will be better, and they will have the satisfaction of having done their fellow man a good turn, even though selfishly and passively resistant under pressure.

CONTRIBUTOR NO. 6131.

MODERNIZE *your* PLANT *with* BRINTONS



When you buy an automobile —you are sure to purchase a car with a proud performance record. Why not apply the same excellent logic when you equip your mill with knitting machines? The name Brinton stands as high in its field, as Rolls-Royce, Packard, and Cadillac in the automotive industry.

Depend on Brintons

Ribbers of every type.

Jersey Machines Plain and Fancy Stitches.

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Special Knitting Machines From ¼ inch to 36 inches.

H. BRINTON COMPANY

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BRINTON CIRCULAR KNITTING MACHINES

of EVERY Kind for EVERY Purpose

The KNIT GOODS MARKETS

A SOMEWHAT confusing situation existed in the primary hosiery markets during the greater part of September and October. Manufacturers who said they believed the retailers were not buying normally for the fall season were cognizant of the fact that probably a majority of the more important mills were in operation day and night and having a market for more goods than they could produce. One leading buyer, representing the better class of retail trade, said it was true that the store was receiving a great deal of hosiery but sending comparatively little out.

An unusual buying movement had developed suddenly. Some representative mill heads and retailing chiefs thought the movement might run into 1933. There was, on the other hand, a feeling that the time was approaching when accumulation of stock would not be warranted by the narrow margin of profit on which many mills were being kept in the active class. Raw silk prices had drooped, leaving quite a spread between values of early September and mid-October. Worsted and cotton yarns became softer after a spurt on a sensational rise in value as reflected in sales reports.

In some quarters there was manufacturer complaint that an element among jobbers was not specifying as promptly as was to be expected. That may have been the first murmur of a threatened halting in the speed attained by the hosiery markets, or merely an incident due to the attitude of a minority element.

There prevailed a feeling among some buyers for the better retail stores that by the latter weeks of 1932 sellers will be in control of the hosiery merchandising situation. Persons holding this view doubt that many manufacturers will produce moderate to high price hosiery except against firm orders. Retailers maintain that they themselves are not financially equipped for buying heavily in advance of needs, and that is a hand-to-mouth condition be created by the safety attitude of manufacturers, the latter necessarily will have the situation pretty well in hand, for it appears distributors will enter upon the winter period with light stocks, speaking generally.

Dealer Wants 24-Hour Delivery Service

As illustrating possible situations arising out of fear of distributors to go ahead, although staple hosiery seems low enough in price to be accepted as a reasonably safe asset, commitments for golf hosiery, for example, have in many instances been very backward. A dealer placed an order with a Philadelphia wholesaler for several cases, shipment to be received in 24 hours. The jobber did not have either quantity or types detailed, and the order had to be sent to the manufacturer, distant perhaps 100 miles from the city to which delivery was to be made.

Both wholesaler and retailer were shy of golf hose, and quite a dialogue between the two ensued as to who was to blame. The incident was closed with the retailer's acceptance of mill delivery at once, leaving out of consideration time of arrival of the goods at destination.

A slowing down in production of pivotal lines of hosiery at this time doubtless would leave numbers of retailers short of hosiery and some jobbers in no position to promptly supply them. Yet precautionary measures by mills are not improbable.

See Little Chance for Reducing Silk Full-Fashioned Hosiery Prices

Would hosiery prices be averaged down from current levels toward those prevailing prior to the rise just before fall trading became active, in the event of a radical departure from the season's activity? is a question that arises in discussions of the outlook. On the present cost of basic materials, declines would be insignificant, in the opinion of even some buyers for the trade, as, it is instanced, during the wickedest competition the industry has experienced manufacturers as a class eliminated from their cost every item consistent with economical operation of plant and maintaining the character of their products. There are intimations of slight advances on certain classes of popular price staples, in the 42- and 45-gauge range.

For the present, it is pointed out, large plants equipped mainly with coarse gauge full-fashioned machines are, in most instances, pushing production to the very limit, and selling it. Chain stores are understood to be volume buyers. "Two shift capacity operation of these more than 150 machines gives us the lowest possible direct operating overhead," said the manager of one of the busier coarse gauge plants in Pennsylvania as he surveyed the knitting room crowded with equipment and operatives. "As some of our rivals advanced their prices only on paper, we had to get down to 'hard pan' to compete."

That is what was going on in numbers of mills during most of September and August, while filling the vacuum in stocks left by wise curtailment in the summer months. Which accounts in part for the fact, as observed by a sales manager, "not much of the hosiery advertising is stressing prices higher than 75 cents a pair."

"There never was a time when we had so many orders," it was related by a manufacturer of men's and women's full-fashioned stockings.

Non-Run Fashioned Hosiery to Vie with Seamless and Trade Sentiment

A good report is expected from the sales of non-run stockings during the holiday shopping period. The innovation did not have such an introduction as would have been commensurate with its apparent importance. This was laid by certain of the buyers for the stores to undue haste in placing small lots in each of a num-

ber of retail establishments in leading cities.

In some instances first showings left an unfilled demand for the stockings. The shipper was not prepared to fill repeat orders and the original proved too small for taking care of the duplicate business offered by an element among shoppers who were impressed mainly with the immunity from runners.

One or two small licensed mills swung into line about the time the Berkshire Knitting Mills got fairly started with deliveries, insufficient though they were. That was in August. About the middle of October the Apex Hosiery Co. got into action with shipments of non-run hose, and almost simultaneously Julius Kayser & Co. got into the picture as a big shipper. To that time, distribution seemed to be confined to the product of mills licensed to use the Schwartz patent. Meantime the Gotham Silk Hosiery Co., understood to control the Graenz patent, continued to direct retailer interest to that type of non-run stocking.

The innovation was well advertised to the retail trade, but as late as the latter part of October, little had been done to enlist consumer interest. This was because receipts from the mills first to make deliveries did not provide stocks from which to follow up first sales. This was, at any rate, the explanation of one leading retailer for not advertising the non-run stockings further than to make one announcement they were being shown. So, the sales during the first few weeks in which the innovation was being offered could not be regarded as a criterion of the manner in which the stocking was received by the shopping public.

It has been a moot question whether the non-run stocking at $1.35 a pair can be sold in worthwhile volume in competition with the regularly knit at around 75 cents to one dollar for comparable quality. The answer may depend largely on the character of the support which it received from sales departments. There is in the minds of some shoppers an aversion for even the finest of mesh stocking—and the non-run stitch borders closely on pinpoint mesh. On the leg, at a distance of a few feet, it is not distinguishable from the regular knit stocking with wales. Which suggests that for fending against first objection, on this score, the stocking be displayed on forms back of instead of on the counter. First impression often is the decisive impression.

One Store Reports No Complaints

An observant hosiery department manager was asked if he thought the non-run feature would diminish the number of returns by dissatisfied women. He believed that customers who might want to return stockings, whether non-run or susceptible to runners, will find a pretext for doing so. But if permitted to return only those developing runners, he thought none would be brought back, except perhaps for exchange for a different size or shade. It was pointed out that the newcomer, while immune from runners, may be ripped or torn, through carelessness or accident, and it was questioned whether the fabric could be as satisfactorily latched or mended as in the case of the wale hose.

The big question obviously is, will women disregard the mesh effect for the non-run feature and pay the difference? Some department managers say yes; others appear dubious. In one or two large stores there could be detected some antagonism to the innovation, one buyer in particular stating that while he would carry it in stock, he would not advertise it.

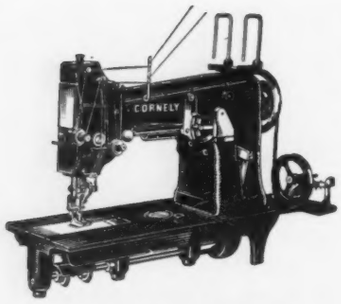
A manufacturer commenting on this show of non-support said he believed production would be on a scale so restricted that there would be not enough of the stockings to supply all large stores, and that shoppers who want them will go to the stores where they are on sale in variety of size and color. Some stores stated last month they had not been able to get enough of the non-run hose to satisfy estimated holiday requirements. Outstanding in the comment of leading retailers on the future of non-run stockings is the proposal they will by no means have a monopoly of feminine favor.

A Philadelphia buyer for a large retail establishment who probably is as widely known as anyone officiating in that capacity feels there is a fair chance of wide popularity for the non-run stocking. The department over which he presides has sold enough for experimental purposes to induce him to feature it. "We have had no complaints of any we have sold," that buyer said.

The non-run stocking story will not be told in its completed form for some little time. The shipments from one leading mill last month were said to represent an improvement in fabric over some that were shipped out in August, and still further improvement is looked for. A seamless knit non-run from a Philadelphia mill is said in the trade to represent very satisfactory merchandise. As the full-fashioned non-run carries no fashion marks—the effect produced by dropping needles in narrowing for the lower part of the leg—the full seamless on the leg is not readily distinguished from the fashioned. The seamless necessarily is a lower price stocking. Another claimant for exemption from the runner fault is a cut-and-sewn line, from a well-known Philadelphia mill. The presence of the seamless knit and the cut-and-sewn in the field serves to indicate the importance attached by manufacturers to the runnerless feature.

Some Big Stores Start Featuring High Priced Printed Silk Stockings

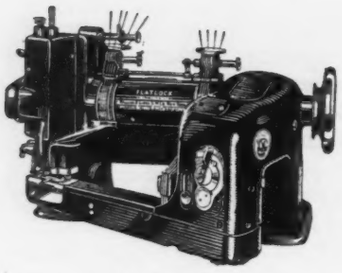
A revival of interest in printed silk hosiery may be credited to the Ipswich Mills, Gloucester, Mass., who have established their line of full-fashioned in chaste designs in numbers of the better stores. That the Ipswich line is moving satisfactorily to hosiery department managers is indicated by the fact that some leading stores are carrying prints to sell for a considerably lower price than the Ipswich goods. The latter are sold for $1.65 a pair in at least two stores in Philadelphia; for $1.75 in one and for $1.85 in another. They are on the very sheer order. In one of these stores there is displayed a line of printed full-fashioned for $1.10 a pair. The latter is of four-thread silk, 45-gauge in a limited number of designs, some resembling a fancy stitch, others in mainly outline work. The modern printed stockings, in some of the designs, approach in appearance a high place as works of art.



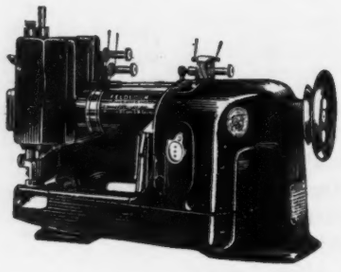
TWO-NEEDLE HEMSTITCH

LOCKSTITCH

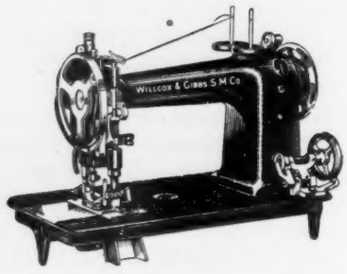
QUALITY MACHINES!



FLATLOCK

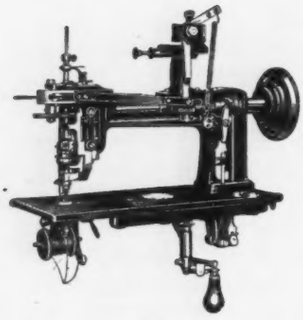


FELDLOCK

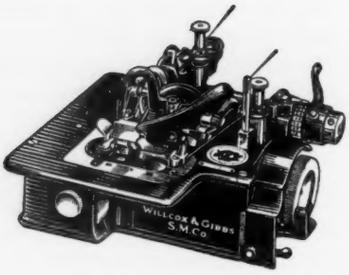


LOCKSTITCH TRIMMER & BINDER

FOR QUALITY MERCHANDISE



CORNELY



OVERLOCK

WILLCOX & GIBBS
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BRANCH OFFICES IN PRINCIPAL CITIES

New Willcox & Gibbs Machines and genuine Parts can be purchased only from the company's offices

In the better shops and big department stores, selling women's silk full-fashioned hosiery for odd prices usually ending with the numeral "9" become monotonous, and enterprising buyers are striving to develop shopper interest in certain distinctive numbers, aside from innovations in the way of non-run fabric and tastily printed stockings for the higher price brackets. Staples in the popular price range have become commonplace to the extent that some erstwhile hosiery departments have been stripped of a part of their dignity in matter of appeal to shoppers. Thus it happens that some buyers for the trade are focussing attention on two-thread fine gauge stockings. They are, admittedly "not much for service, but they do excite the envy of women in just average chiffons", it has been observed.

Two-Thread Hose a Troublesome Item

Buyers are in accord that two-thread hosiery is a troublesome staple, and some stores carry it only as an accommodation for a few of their "best customers," selling not enough to justify the risk of putting them in stock. A store patronized by the more discriminating element, as well as being a mecca for the bourgeoisie, recently discontinued its line of two-thread 51-gauge and is showing 57-gauge exclusively. This, says the management, is the logical gauge for two-thread silk hosiery.

The merchandise manager for a somewhat exclusive shop for women picks 54-gauge for three thread number, maintaining that, while sheer enough to satisfy the most fastidious, it provides better service because of the greater silk content. This type, say buyers, should sell for $1.65 a pair, minimum.

An establishment which selected 48-gauge for its two-thread number had unsatisfactory results. The fabric so lacked in body, it is stated, that returns amounted to around 50 per cent of the sales. There is said to be an increasing number of customers for fine gauge two thread hose, which is viewed in some of the shops as indicating a trend to higher price hosiery. The specifications received by one of the leading manufacturers of trademarked silk full-fashioned stockings sold direct to the retail trade causes the sales manager to look for increasing sales of dollar goods.

That mesh hosiery had an unexpectedly short existence as a vogue is indicated in lavish offerings by some of the more important stores, which had bought over-freely while the consuming public was reveling in the net construction as something distinctive. As fast as one size of mesh became popular, a larger one was brought out, until meshes ran from fine pinpoint to fish-net. About that time, with lace stockings presenting an appearance of more refinement, having made their appearance, meshes of all types went the way of many other novelties in hosiery. But they have been on display ever since, and recently were put on the counters on forms as a likely fall item. Sales have been, in a way, gratifying. In any event, stores are decreasing their holdings of mesh hosiery. Some of the price tags indicate rather heavy losses have been suffered as a result of plunging on a springtime whim of womankind.

Mesh stockings might be viewed as more attractively priced if some manufacturers and a few large retail stores were not giving an exhibition of competition in the matter of the lowest price offerings and featuring mill runs, menders and a variety of irregulars and seconds as first quality. Deception of this character got so bad in Philadelphia a few weeks ago that the buyer for one leading department store unreservedly passed judgment on stockings from a popular price store and gave aid to the Better Business Bureau in activities for exposing a palpable fraud on shoppers. The stockings in question were represented as chiffon silk first quality, picot top, at 38 cents a pair, the previous low price in Philadelphia being 39 cents. A week later "Run-resist" crepe hosiery was on sale at 44 cents, and was not described as other than first quality. In another establishment alleged non-run silk stockings, admittedly irregulars, were displayed under a price tag 39 cents.

"Hosiery retailing in Philadelphia ought to be treated to a thorough house-cleaning," ejaculated a department manager commenting on the offerings of stockings on which the prices ought to have been warning to shoppers of the inferior character of the goods. Such stockings not adequately described and often inadequately priced are making it difficult for manufacturers of first grade low end hosiery to maintain even their low prices.

Mill Gives Up 39-Gauge Stockings Because Rivals' Prices Too Low

A manufacturer quite recently announced having discontinued production of 39-gauge hosiery, for the reason some mills were quoting so low for that gauge, not sensational for quality, it might be said, that to try to compete were to either encourage a losing game or supply customers with stockings so revised as to construction details that they would be pretty certain to increase the number of returns. The mill discontinuing 39-gauge now is specializing in a 42-gauge number at $4.75 a dozen as its low end leader. Some retailers, however, balk at this price, since, it is asserted, 42-gauge has been going to a few favored retailers for $4.35, which is the maximum price obtainable from some jobbers. It appears to observers that if somebody offered a 42-gauge stocking at the late spring price of $4 a dozen, some other out-of-balance concern would shade to perhaps $3.75 if the raw silk market were at the level of a few weeks ago.

Standard construction 45-gauge hosiery, selling for $5 by some manufacturers, was obtainable at times in October for $4.50 a dozen, which was about 65 cents above the low price of the period immediately prior to the start of marking prices higher. Since stray offerings of 42-gauge have been pretty well taken up, there appears increasing interest in 45-gauge unfinished.

A Philadelphia wholesaler was commissioned in October to locate both 45- and 48-gauge in the gray. It is understood one or two mills in the southern belt were in the market early last month for these types, being sold well ahead of their regular lines of 42-

and 45-gauge. In fact, it is related by a well known buyer who, instead of waiting for southern mill representatives to call on him, did the calling. He was in quest of full-fashioned goods and says he found manufacturers in the same position. It was estimated by one buyer that "seven out of ten southern mills which he visited were offering to buy in the gray."

It was the impression of one extensive operator visiting Georgia, North Carolina and Tennessee that "most of the southern manufacturers of any magnitude were making a better job of marketing their product than are a majority of those located elsewhere; and that the full-fashioned industry in the South is 'coming back fast'."

It has seemed for two months that no one section had an edge on any other in full-fashioned hosiery output, mills generally maintaining a steadier and more advanced stage of operation than at any time during the preceding eight months. The trade advances several explanations for the activity, profitless though it may have been for numbers of mills.

According to some observers, jobbers and retailers who had whittled their stocks to near a vanishing point, all came to market about the same time to replenish for current needs and lay up stocks for fall. That was about the time some of the manufacturers announced the first price advances to come out in 1932.

As in most mills the increases stuck and additional manufacturers gave their quotations an upward revision, buying received fresh stimulus, until some manufacturers were booked up for their production for two to three months and found it expedient to decline some business. It was realized, of course, that credit conditions would bear watching as merchants began stocking up for a presumably brisk holiday trade, for, experience shows, frequently after heavy retailing, credit committees are called on to work overtime and receivers look forward to some fat fees. So, it transpires, some of the dealers sending orders received no confirmation.

Probably the outstanding reason for the reincarnation in the markets for full-fashioned hosiery was the better adjustment of production to consumptive demand, as indicated in the reports of 328 mills to the Census Bureau for August, 1932, the same mills reporting for the corresponding month of 1931.

Summer Curtailment of Production Made for Better Hosiery Market

While full-fashioned production was increased in the 1932 August to 1,495,600 dozens from 1,342,800 dozens for August a year ago, orders booked were increased by 656,789 dozens and the month's shipments were greater by 217,822 dozens. Thus the increased output was not sufficient to take care of the larger quantities going into distribution, while stocks in mills at the end of the month had been reduced by over 500,000 dozens and there was a gain of more than 150,000 dozens in unfilled orders.

Comparisons of the statistics for August this year and last are almost as gratifying in men's half hose and really not disturbing as to other classes. Will the August curbing of production be repeated when again the markets become glutted?

Output of nearly 62,000 dozens of silk-and-cotton full-fashioned, and 25,793 dozens of seamless for women are accounted for in the August statistics supplied by manufacturers. This compares with none of women's full-fashioned in August, 1931, and a 50 per cent increase for women's seamless. The totals, all classes, of this construction, were 92,153 dozens in August this year and 14,102 dozens in the corresponding month of 1931.

Triple mixtures for hosiery appear waning in popularity since last year, as in August, 1932, there were knitted only 3334 dozens of juvenile lines and 9972 dozens of infants, comparing with 28,242 and 22,304 dozens respectively for the 1931 August. The chart shows also a sharp drop in the use of all-rayon and silk-and-rayon for juvenile numbers and socks for infants, and an almost unbelievable decline in the use of silk-and-rayon in combination for women's seamless.

Some Mill Men Poor Merchandisers

One deduction to be drawn from the spectacle of numbers of mills being engaged to capacity for two shifts of operatives while others were looking for an outlet for their production on terms indicating disregard for profit was that certain manufacturers lack merchandising ability, while it is a part of the fiber of others. A manufacturer of 45-gauge stockings of admittedly high standards of construction for some time has been selling in the gray to a large producer of 39- and 42-gauge. The former wanted $5 a dozen finished and, unable to keep the plant going while standing pat on that figure, accepted a low price for gray goods. He is probably making the equivalent of a general manager's salary, has no trouble with cancellations and pay-day finds him with ready money. While he is thus disposed of as a possible competitor in matter of price, the larger manufacturer, buying his product, has 45-gauge goods at less cost and assumes less risk than if he installed equipment for increasing his line. Thus buying gray hosiery may work out very well for all parties concerned, and at last accounts there were some fair size mills at top speed that were open to consider offerings of silk full-fashioned unfinished.

More Self-Supporting Half-Hose in Full-Fashioned Construction

A new type of half-hose for men is about to make its appearance in retail stores, if it has not already done so. It might be described as a stocking and garter in one. The sock is knitted the regulation length, with ribbed top, according to first samples shown last month. The garter, of lastex, is shaped to fit the leg above the fleshy part of the calf. Depending from the garter is a strip of lastex of like width, the other end of which is attached to and supports the stocking to the lastex band which takes the place of a separate garter.

The advantage of a self-supporting sock lies in the fact that when it is pulled up over the lower leg it is there to stay until the wearer desires its re-

moval, eliminating the handling of a detached garter. The stocking shown, and which at that time was expected to be on sale shortly, was of full-fashioned construction, and it was intimated the retail price might be one dollar a pair.

The innovation follows the introduction in early August last of the H. C. Aberle Co. Klingtop half hose, the elastic in this stocking being knitted into the top and forming a component part of the stocking. The Aberle sock is somewhat longer than the regulation half hose, being of a length sufficient to locate the elastic band or self-contained garter at the proper place on the leg where the detached garter encircles the limb. The difference therefore between the Aberle self supporting sock and the later model, is that as to the latter, the garter is separated from the top of the stocking by about 1½-inch but attached to it by means of an elastic strip of about 1½ inches in width.

The H. C. Aberle Co. recently brought its Klingtop sock out in fine mercerized or lisle construction, the original being of silk. It is understood to be meeting with a hearty reception, although on the market for only around three months. Both types of self-supporting socks are protected by patents, and it seems not unlikely they will become staple numbers, in which event they doubtless will have to compete with seamless socks with garters as a part of their construction.

While statistics indicate a decline in production of full-fashioned half hose, at least one mill is producing at a rate that would seem to contradict such a view. The concern is engaged with orders from a large establishment that uses no cheaply made numbers, and is apparently encouraging the use of the better types exclusively. Distribution of a two-tone lisle-rayon number is especially heavy, it is stated, and there continues well sustained call for wool mix, a combination that is running well ahead of last fall's volume. Aside from sports lines, demand for wool-mix stockings for women is not so great as a year ago. This is ascribed by some to very low prices for service weight silk and mercerized. Processed cottons in one chain of stores are said to be having a good sale at 20 cents a pair.

Shipments of mercerized yarns, dyed and in the gray, have been going to hosiery mills in considerable quantity for some time. Several mercerizers say that not in more than a year has their poundage delivered to hosiery manufacturers been as great as in the preceding two months, and contracts call for deliveries to numbers of these mills to the end of December.

Exports of cotton hosiery in August, as reported by the Department of Commerce, totaled 47,732 dozens, of an invoice value of $59,786. The figures for the preceding month were 58,715 dozens and $72,183 value. Women's silk full-fashioned hosiery showed an increase in the exports of almost 7000 dozens, the report accounting for 20,151 dozens, of a value of $118,355. Women's silk seamless exports totaled but 1355 dozens, which was a slight gain over July. Exports of rayon hosiery declined around 3000 dozens, comparing with July. A falling off was noted in men's, women's and children's.

Considering the amount of business in underwear placed to last month, deliveries have been at a fairly brisk stage. New business continued only fair, as appraised by some of the Mohawk Valley manufacturers of medium and heavy weights. While some mills are sold ahead for another few weeks, there remains considerable business in men's heavies to be placed, if wholesalers contemplate last year's volume of distribution to be repeated. This, however, holds out no great hope of continued activity in men's heavies generally.

Draggy Season for Heavy Underwear May Cause Delay in Light Weight Opening

Economic conditions are, of course, taken into consideration in estimates of the season's production. Some elements believe that demand for union suits at materially lower than last year's prices will account for a trend to medium weights, as an economic expedient, and that if this prove true at this time, succeeding years will mark a very pronounced decline in demand for anything in men's heavier than garments always classed as medium weights.

As showing how close to absolute cost, buyers figure prices, mills have found it next to impossible to maintain a markup of 12½ cents a dozen for certain lines of medium weights. Orders have been lost to mills standing pat on an advance amounting to one cent per shirt or pair of bloomers. Conditions in this respect have been more trying because of fluctuations in raw cotton.

Buyers seem to expect underwear prices to follow cotton downward, but not when the white fiber is in the ascendancy. This was made apparent again last month when cotton went off on the government report estimating a larger yield than that indicated in the September statement of the Department of Agriculture. Buyers' repeated demands for concessions have had the effect, of course, of holding much business in check, and whereas manufacturers had looked forward to a fairly wholesome fall situation, it now appears that of chief concern among mill heads is that of how to escape a large inventory and at the same time provide for contingencies liable to arise at the eleventh hour.

It begins to look to some manufacturers as if the light weight opening might be virtually omitted as buyers are manifesting little or no interest. In any event, whatever shape the formality may take, the first coming out by manufacturers as a group with light weight samples and prices will be late, by reason of the draggy season for heavies and the lateness in getting started at all. It is figured by an upstate New York mill executive who also has important underwear interests elsewhere, that not until the December cotton report of condition and estimate of the bale crop has been issued, will there be any general inclination of buyer or seller to talk light weight underwear for deliveries for the spring of 1933.

Light exports of cotton knit underwear, it is pointed out by mill men, are telling hard against American production. The Department of Commerce ac-

Perlglo
ENKA

THE delicate, soft bloom attained by so many of this season's crepes originated in the mills of American Enka. For here is produced Perlglo, a yarn so rich in iridescent lustre that the fabrics into which it is made possess a life and character and softness which are not merely desirable, but distinctly unusual.

Perlglo, in its own right, is a rayon yarn of surpassing quality. But it owes much of its beauty and workability to the standards of excellence which govern its manufacture. Like all Enka yarns, every inch of Perlglo is produced under a set of uniformity requirements as rigid as our years of technical experience can make them. The result is Enka quality . . . Enka strength.

Enka Perlglo comes to you in weaving or knitting cones, in spools, in bleached or unbleached skeins, in standard or multifilaments, and in deniers from 50 to 300. Test Enka as rigorously as you will. Other mill operators have—and they found Enka Perlglo a surpassingly fine product, rigidly uniform in quality. Why not have us put on a trial run in your own mills?

★

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★

counts for a total of only 13,311 dozens in August, of which less than 1000 dozens were for children and infants. Men's and boys' led, with an aggregate of 6068 dozens. The total invoice value was $27,206,

Sweater Mills, Busy with Late Orders, Decline Some Spot Delivery Business

Knitted outerwear, for men, women and boys, continued through October as probably the more active item in standard knit goods. It is no exaggeration to say that leading mills have been swamped with orders. Nor is it outside the line of truth to say that manufacturers, in instances, have been more puzzled with the question of how to dispose of the orders of some favored customers than with the problem of maintaining production to the end of the year.

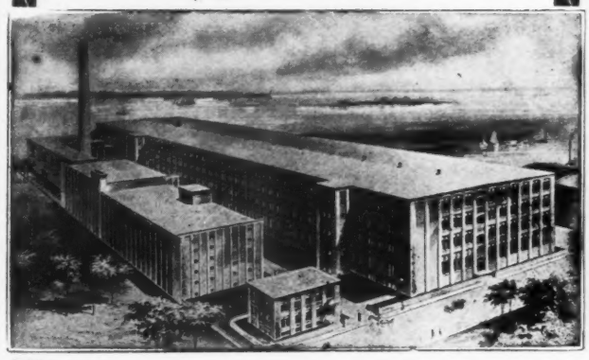
Particularly has there been a scarcity of sweaters for retailing at $1.50 and $2. Jobbers have not been receiving enough to fill all of their orders. This is the fault of the jobbers themselves, in most cases, as orders were withheld until retailers started buying. Early delivery low end sweaters have gone forward. The difficulty is to find a way to meet demand for this class of goods for current delivery. This was the experience of manufacturers before wintry weather supplied a stimulus for jobbers operating in a big way in national territory.

Until last month, sweater manufacturers had not booked a normal season's business. They were crowded by reason of so many orders being withheld, so that the last minute rush presented an exaggerated picture of the true situation in the knitted outerwear industry. Due to slow output early in the year and lateness of getting started with fall business, many manufacturers sustained paper losses. These are being made up, and there is seen a possibility of finishing the year on a very satisfactory volume of business.

Saving sweater mills from the devastating results of price competition was the advance in worsted yarns values, amounting to as much as 20 to 25 cents a pound for certain typical counts of two-ply medium grade. The upward revisions were announced about the time mills which had been overlooked in the distribution of orders began to scale quotations by a dollar a dozen, or around 12 per cent. Higher prices for yarns put a stop to the lowering of goods values, and some spinners took the stand late in October that, regardless of the outcome of the presidential election, yarn prices would be higher in November.

Knitted outerwear has been going along with the upward trend in the knit goods industries generally —leading some few lines, perhaps. So far as indicated in interviews with manufacturers, there already has been made a start toward closing the year with the lightest inventories in years. Jobbers and retailers have bought sparingly, considering their sales volume as reported to mills, and it was thought last month that in the event of severe weather along in November-December, spot delivery goods will be in demand sufficient to enable manufacturers to exact premiums.

Quissett Mill
New Bedford, Mass.



COTTON YARNS
MORE THAN SKIN DEEP

Goodness in yarns must be more than skin deep if the trade is to be satisfied. Quissett realized this fact. That is why they have always kept one of the best staffs of expert yarn men in the country working full time to uphold the quality as well as beauty of Quissett Yarns.

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STANDARD STEEL AND DURAKROME

The YARN MARKET

Philadelphia, Pa., October 15th, 1932.

CARDED yarn shipments continue to maintain a lead over production, the spread being a trifle wider since September. Sales have been ruling considerably less than output, however, since the latter part of September. Necessarily this is explained by the great poundage sold in August and the earlier weeks of September. During the same period stocks of yarn, all classes, have steadily declined, and the same is true of unfilled orders, according to Philadelphia traders, who assert that current output is further below normal than at any time in almost two years.

Sales of carded yarns in the Philadelphia area have been largely of knitting numbers, tapering this month from a strong volume in September. Sellers were left with a good booking of unfilled orders, and latterly specifications have been reaching most of them with gratifying promptness. Some houses here have experienced difficulty in filling orders for customers who delayed placing their business until mills had been pretty well sold ahead, and in instances accepting no business for deliveries inside of two to three weeks. This was a situation so unlike that which had prevailed, and developed so suddenly, that comparatively few consuming mills were prepared for it.

Yarn prices did not go through a real test after the October 8th crop report was issued, and it was difficult late last month to arrive at a trading price acceptable generally, for buyers were out to locate weak spots while some were keeping hands off pending the result of the election on November 8th, which happened to be the date on which the next crop report would be due. Election day was looked forward to for two reports—one of the balloting, the other relating to the weight of cotton produced in 1932.

While carded yarn quotations followed pretty closely the ups and downs in cotton, prices have ruled fairly steady. The second week in October found them at their lowest level in some time, ruling quotations in Philadelphia being on the basis of 15—15½ cents for 10s single cones, of good average grade. With the dawn of the third week, 15 cents was being accepted by various houses, and an inside quotation of 14½ was heard occasionally. Shading to this extent was by no means general at that time, but it seemed apparent that unless the market received substantial support in the next few weeks, the situation might take on the appearance of slight sinking spell.

There has been some confusion over prices for weaving numbers of carded yarns. Buyers were trying to acquire 20s/2 warps for 16 cents, and it was definitely stated that negotiations were under way for a sizable lot at that figure. About the same time, spinners were declining a half cent more. One spinner refused to accept an order at 17 cents, while that price was paid to another during the interval in revisions when 16 to 16½ was under consideration.

Yarn interests have been concerned recently over a falling off in sales to somewhat less than the production of the mills they represent or whose output they stress, whereas a few weeks ago production was considerably under the then current sales. Yet, except where there are accumulations in suspected weak hands, the market in Philadelphia bears the earmarks of continued price firmness.

Two or three northern mercerizers last month had more business on their books than in many months and shipments indicated consumption was running strong. It was predicted recently by some combed yarn interests that singles were about due for an upward price change, although at the time demand was not strong.

Philadelphia prices published October 15 follow:

Single Skeins.

4s to 8s	14	10s	14½
12s	15	14s	15½
16s	16	20s	16½
24s	18	26s	19
30s	20		

Single Warps.

10s	15	12s	15½
14s	16	16s	16½
20s	17	26s	19
30s	20		

2-Ply Skeins.

8s	15	10s	15½
12s	16	14s	16½
16s	17	20s	18
24s	18½	26s	19½
30s	20½	40s	26 @27

Two-Ply Warps.

10s	15½	12s	16
14s	16½	16s	17
20s	17½	24s	19
26s	20	30s	21
40s	27 @28		

Frame Spun Carded Cones.

8s	14½ @15	10s	15 @15½
12s	15½ @16	14s	16 @16½
16s	16½ @17	18s	17 @17½
20s	17½ @18	22s	18 @18½
24s	18½ @19	26s	19½ @20
30s	20½ @21	40s	26½ @27½
30s double carded			24 @24½
30s tying-in			19 @19½

Carpet Yarns.

8s and 9s white warp twist	13 @13½
8s tinged tubes	12 @12½
8s part waste	11½

Two-Ply Combed Peeler Skeins and Warrps.

8s to 16s	28	20s	29
24s	31	30s	34
40s	39	50s	42
60s	46	70s	56
80s	66		

Single Combed Peeler Yarns on Cones.

18s	23 @25	24s	26 @28
30s	29 @31	36s	32 @34
38s	34 @35	40s	35 @36
50s	39 @40	60s	44 @46
70s	54 @56	80s	64 @66

Mule Spun Carded Yarn on Cones.

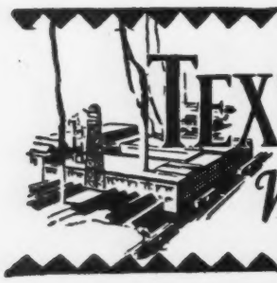
10s	20	12s	20½
14s	21	16s	21½
18s	22	20s	23
24s	24	28s	25
30s	27	40s	34

Mule Spun Combed Peeler Yarn on Cones.

10s	26	12s	28
14s	29	16s	30
18s	30½	20s	31½
22s	32	26s	33
28s	32	30s	36
36s	38	38s	39
40s	42		

Tinged Insulating Yarn.

8s–1	12½	10s–1	13
12s–1	13½		
8s–2	12½ @13	10s–2	13 @13½
12s–2	13½ @14	20s–2	15 @15½



TEXTILE BOOKLETS *Worth Writing For!*

The booklets or catalogs briefly mentioned below may be obtained by any readers of COTTON who will write to the Company issuing them or to COTTON, Grant Bldg., Atlanta, Ga.

52. **The Lincoln Twin Disc Floor Machine**—showing the many advantages of clean, sanitary floors, the saving of time and labor through using floor cleaning machines and describing in detail the various models of Lincoln floor machines. Lincoln-Schlueter Floor Machinery Co., 213 W. Grand Ave., Chicago, Ill.

54. **Shipper's Handy Helper**—A forty-eight page booklet giving valuable information on shipping problems, including suggestions on packing, marking, numbering and invoicing shipments and describing the principal items generally used in shipping departments. Southern Shippers Supply Co., 118 Courtland St., S.E., Atlanta, Ga.

55. **Interpretation of Analysis for the Layman**—An eight page booklet explaining what the various terms used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

56. **Technical Service Data**—giving information on processes of textile manufacture in the use of oils, softeners, etc. National Oil Poducts Co., Harrison, N. J.

57. **Reducing Textile Costs and Troubles** telling all about the benefits of water treatment. Permutit Co., 440 Fourth Ave., New York, N. Y.

61. **Belt User's Book**—76-page book with suggestions, rules, tables and charts helpful in the purchasing, application, use and care of belting. J. E. Rhoads and Son, 35 North 6th Street, Philadelphia, Pa.

62. **Rubber Products for the Textile Industry**—a 40-page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan Inc., Passaic, N. J.

63. **S-W Paint Standardization Plan**—valuable booklet telling how protective coatings can effect economies in plant operation and maintenance, describing how each surface is finished to best meet its specific needs, giving ideal lighting and sanitary conditions and economies in increased production. Sherwin-Williams Co., 601 Canal Rd., Cleveland, Ohio.

64. **Efficiency and Performance of SKF Roller Bearing Spindles**—A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., 40 East 34th St., New York, N. Y.

65. **Why Cooper Hewittt Light is Better Than Daylight**—a 16-page booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Elec. Vapor Lamp Co., Hoboken, N. J.

66. **Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 176**, describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

67. **Specification and Size book, I-31** convenient reference book giving complette information and prices on Rockwood Short-Center Drive for textile machines. Rockwood Manufacturing Company, Indianapolis, Indiana. —

68. **Rockwood Pulley Specification**, a reference booklet giving complete specifications of 2,540 stock sizes of pulleys. Rockwood Manufacturing Company, Indianapolis, Indiana.

69. **Monel Metal Equipment for the Textile Industry**—a 50-page buyer's guide and catalog with more than 100 illustrations of various items of monel metal dyehouse equipment. International Nickel Company, Inc., 67 Wall St., New York, N. Y.

70. **Fafnir Ball Bearings for One-Process Pickers**—outlining the advantages of ball bearings in guaranteeing smooth accurate motion particularly on eveners, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company, New Britain, Conn.

71. **Short Cuts to Power Transmission**—A 74-page handbook for belt users, incorporating the most important phases of practical belting practices, including considerations in belt buying, care of belts, making belt joints, belt calculations, causes of belt troubles, etc. Flexible Steel Lacing Company, 4916 Lexington Street, Chicago, Ill.

72. **The Merrow Butted Seam**—A 16-page booklet defining and illustrating the Butted seam, describing its prop rties and outlining some of the advantages to be gained by its use in textile fabrics. The Merrow Machine Co., Hartford, Conn.

73. **New Reeves Catalog T-32**—A treatise on efficiency speed control—including valuable information of special importance to textile industry men and production executives outlining advanced methods of speed regulation. Reeves Pulley Company, Columbus, Indiana.

74. **Colgate-Palmolive-Peet Bulletin No. T-22**—booklet giving complete details of degumming and dyeing in a single bath with soap. Colgate-Palmolive-Peet Co., 919 North Michigan Ave., Chicago, Illinois.

75. **The Facts About Armstrong's Seamless Cork Cots**—A helpful book containing plain facts, cost studies based on actual mill records, expert analysis, complete details on the advantages of Armstrong's Seamless Cork Cots. Armstrong Cork Company, 923 Arch Street, Lancaster, Pa.

76. **Jointite Cork Products**—Giving information on the uses of cork for insulation purposes. including useful data, specifications, tables, and charts for roof insulation, refrigeration, sound-proofing, heat prevention, heat conservation, vibration deadening, and condensation prevention. It contains concise and valuable data on all of these subjects, as well as photographs and drawings showing specific examples of various types of construction, test curves, etc. Copy sent free to anyone interested in any of these subjects. Mundet Cork Corp., 450 Seventh Ave., New York, N. Y.

77. **Bulletin T 200**—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages, and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

78. **Booklet L 1289 A, Loom Motors and Control**—giving details of the low installation, operating and maintenance cost of Westinghouse Loom Motors. Westinghouse Electric & Manufacturing Company, Room 2 N, East Pittsburgh, Pa.

79. **Diamond Alkali Handbook**—Containing useful information relative to Soda Ash, Caustic Soda, and Liquid Chlorine. Diamond Alkali Co., Koppers Bldg., Pittsburgh, Pa.

80. **Alkaline and Other Detergents**—a twenty page booklet on alkaline and other detergents and their function in textile processing and general cleaning operations. Diamond Alkali Co., Koppers Bldg., Pittsburgh, Penna.

85. **Dyeing**—A new 32 page "Handbook for the Hosiery Dyer" giving many pages of useful laboratory tables and data on the proper selection and use of boiling-off, dyeing and finishing products. Sent free by E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Penna .

86. **Three New Textile Scouring Agents**, a 32 page booklet which tells how scouring, boiling-off and finishing costs can be reduced by the use of a new type of detergent known as Golden Wonder Powder, by E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Penna.

87. **Morehead Back-to-Boiler System**—An interesting 44 page booklet, giving helpful information regarding the Morehead Back-to Boiler System. Morehead Manufacturing Co., Department C, Detroit, Michigan.

1. **Cotton Picking, Carding and Spinning**—Covered by three different catalogs. Picking catalog covers Opening and Picking Machinery; Card Room catalog covers Cards, Combers and Roving Frames; Yarn Machinery catalog covers Spinning, Twisting, Spooling, Quilling and Reeling. By Whitin Machine Works, Whitinsville, Mass.

2. **Pepperell Equipment**—10 page illustrated booklet showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments, installation and product photographs. Issued by Universal Winding Company, Boston, Mass.

4. **New Methods of Opening Cotton**, also **"Brown" Automattic Mixing and Cleaning Distributor** — Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

8. **" Textile Brushes"**—10 page booklet illustrating brushes for cleaning every part of mill. By Gastonia Brush Co., Gastonia, N. C.

10. **Leathers, Textile**—Booklet No. 101, 48 pages. Illustrated. Showing BONDARON Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. **Whitinsville Rings**—16 page illustrated booklet. Describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

15. **The Powers System of Thermostatic Control**—"Slasher Room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2739 Greenview Ave., Chicago, Ill.

20. **Bleaching, Dyeing, Finishing and Printing Textile Goods**—70-page booklet containing interesting iinformation on faults and methods in finishing goods, useful tables and definitions. By Bosson & Lane, Atlantic, Mass.

21. **Warp Sizing and Composition of Cotton**—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Wooley Co., 748 Rice St., Atlanta, Ga.

22. **Tragasol and Its Uses**—Booklet, 60 pages, constituents and properties—Dissolving and preparation—sizing and dressing of yarns—cloth finishing—miscellaneous. By John P. Marston Co., 247 Atlantic Ave., Boston, Mass.

23. **Practice of Rayon Sizing in American Mills, Raygomm, Lakoe Gum**—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

25. **"Lupogum" and "Monopole Oil"**—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

28. **Akron Belting.**—Practical Rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

29. **Continuous Card Stripper**—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. **Lubrication of Textile Machinery**—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York and New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. **Sleaziness in Full Fashioned Knitting**—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading Pa. (This company also issues parts catalog for Reading full fashioned machine with general information on subject of full fashioned knitting.)

41. **Budget Control**—40-page booklet showing how each part of business budget should be prepared and principles of its effective operation together with a summary of benefits. By Ernst & Ernst, accountants, 27 Cedar Street, New York, N. Y. (This company also has available booklets on Standard Costs, Business Control Through Analysis, The Better Wage, Factors to Consider in Working Out Mergers.)

42. **Textiles and the Telephone Typewriter**—6 page booklet on telephone typewriter service for communication between mills and selling houses. By American Tel. and Tel. Co., Long Lines Department, Atlanta, Ga.

44. **Points of Interest in and Around Atlanta**—36 pages. Illustrated, describing places of scenic and historic interest in Atlanta in particular, and the Southeast in general. Atlanta Biltmore Hotel, West Peachtree, Fifth, Sixth & Cypress Sts., Atlanta, Ga.

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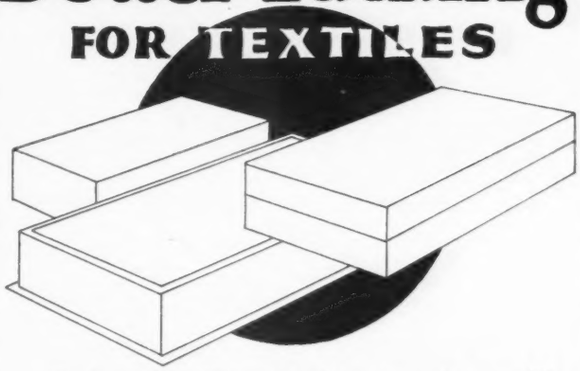

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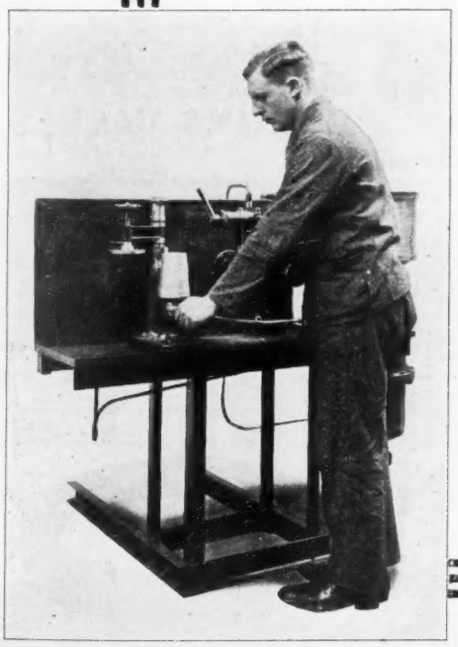

No longer need you be the victim of weight losses when shipping or storing yarns. The HYGROLIT process insures controlled moisture and equalizes humidity in each layer of yarn on cones or tubes. HYGROLIT liquid positively protects against mildew and moth, even if yarn is stored for months.

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HYGROLIT conditioning process does away with necessity of backwinding—reduces spoilage—saves expense.

FREE TEST: We will gladly prove to you the merits of HYGROLIT process. Send us a cone of yarn which will be processed and returned to you. You be the judge of results.

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Kearny, N. J.

or

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W. J. Westaway Co., Ltd., Hamilton, Ont., and Montreal, Que., Canada
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from the spinning to its final finishing of either woven fabrics, knitted fabrics or cotton bats. Whatever your problem, ask our Research Department to help you solve it.

To reduce your soda and get a softer boil use **KAY**—Kay has slight bleaching action and if any starch is present on warps it makes the starch soluble and easily washed out.

Use **KALPINOL** (Sulphonated Pine Oil) for boiling out in kier before bleaching. It removes the natural oil and waxes from cotton. Reduces capillary action and allows alkalies to penetrate and give good even boil thus assuring quicker and more uniform bleaching.

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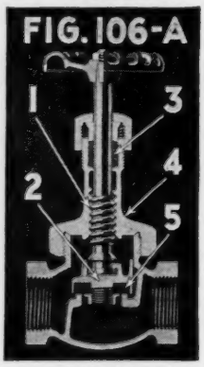

Fig. 106-A Jenkins Standard Bronze Globe Valve has:—

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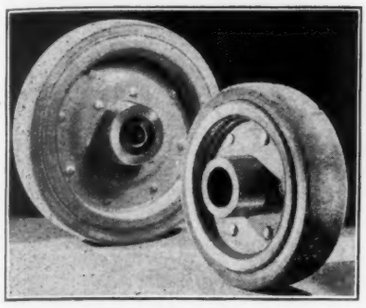

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Divine Truck Wheels of Cotton Fabric Actually Outwear Iron and Steel

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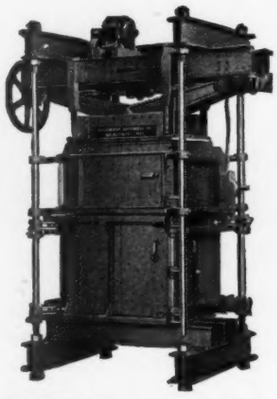
Divine CANVAS CUSHION TRUCK & CASTER **Wheels**

RELIANCE » »

the factor that tells



Model 26-MS. Power Baler specially designed for export yarn baling.

In baling waste—yarn—finished goods there is no press as dependable as a Logemann.

Its easy working action calls for no skilled operator—brings low maintenance costs. Its design simplicity denies repair costs — eliminates delays. Its unwearing strength means years of hard service usage — slow depreciation.

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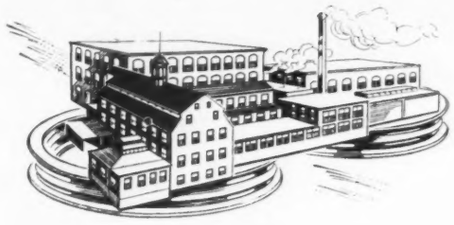

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When a shop makes nothing but rings for 59 years and comes to be the world's largest ex-exclusive ring-maker, their rings must have some definite superiority which the test of the years has established. Rings are not a side-line with us—they are the "whole works." For superior ring service, standardize on DIAMOND FINISH.

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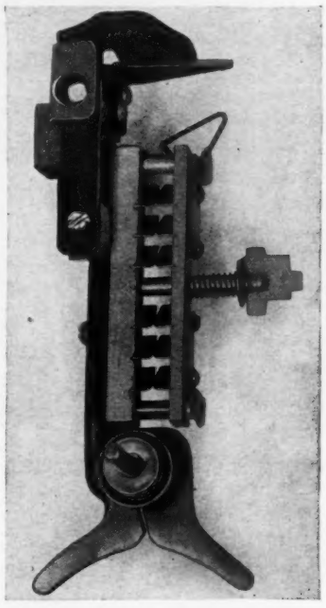
1600 ROOMS . . . 1600 BATHS



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HAVE YOU CONSIDERED THE QUESTION of making cleaner and more perfect yarn?

You can use the NEW ECLIPSE YARN CLEANER and clean your yarn in the winding process. The ECLIPSE YARN CLEANER can be attached to Foster and Universal winders.

Why not tackle the job right now? Make ordinary carded yarn cleaner than double-carded yarn with little or no additional operating costs.

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IMPROVED
Yarn Cleaner

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450 Seventh Avenue **New York City**

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"Arguto Bushings have outlasted 7 Bronze Bushings in the same place. Very severe service."

—unsolicited testimonial

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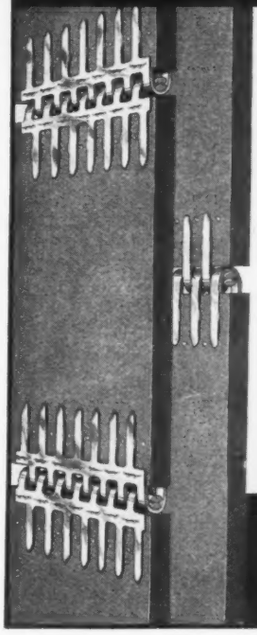
STEEL BELT LACING



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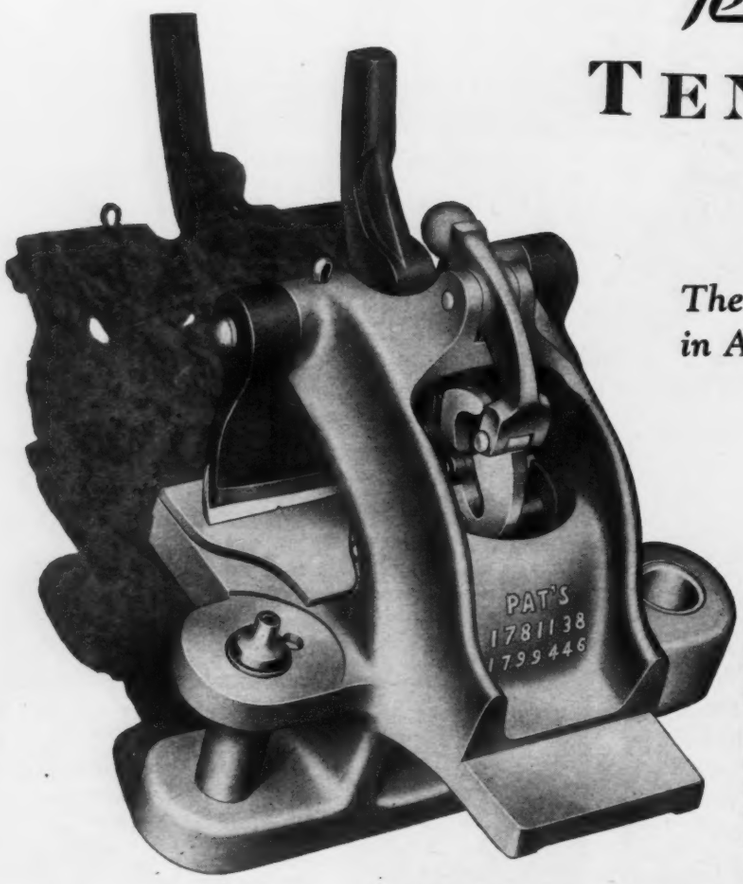
(454)

Textile's New TENTER CLIP



The greatest single advancement in Automatic Tenter Clip design

THIS latest Textile Tenter Clip has many exclusive and patented features not found in any other Tenter Clip manufactured to-day.

A Clip that in addition to being mechanically correct, can handle a broader variety of fabrics. A Clip that will give you more years of service, and cost you less for upkeep.

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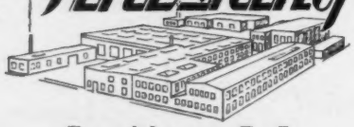
The connecting rivets are each equipped with an Alemite fitting for pressure type lubrication with grease.

Our nearest office will be glad to give you the complete story of this modern Tenter Clip.

The Textile Finishing Machinery Co.



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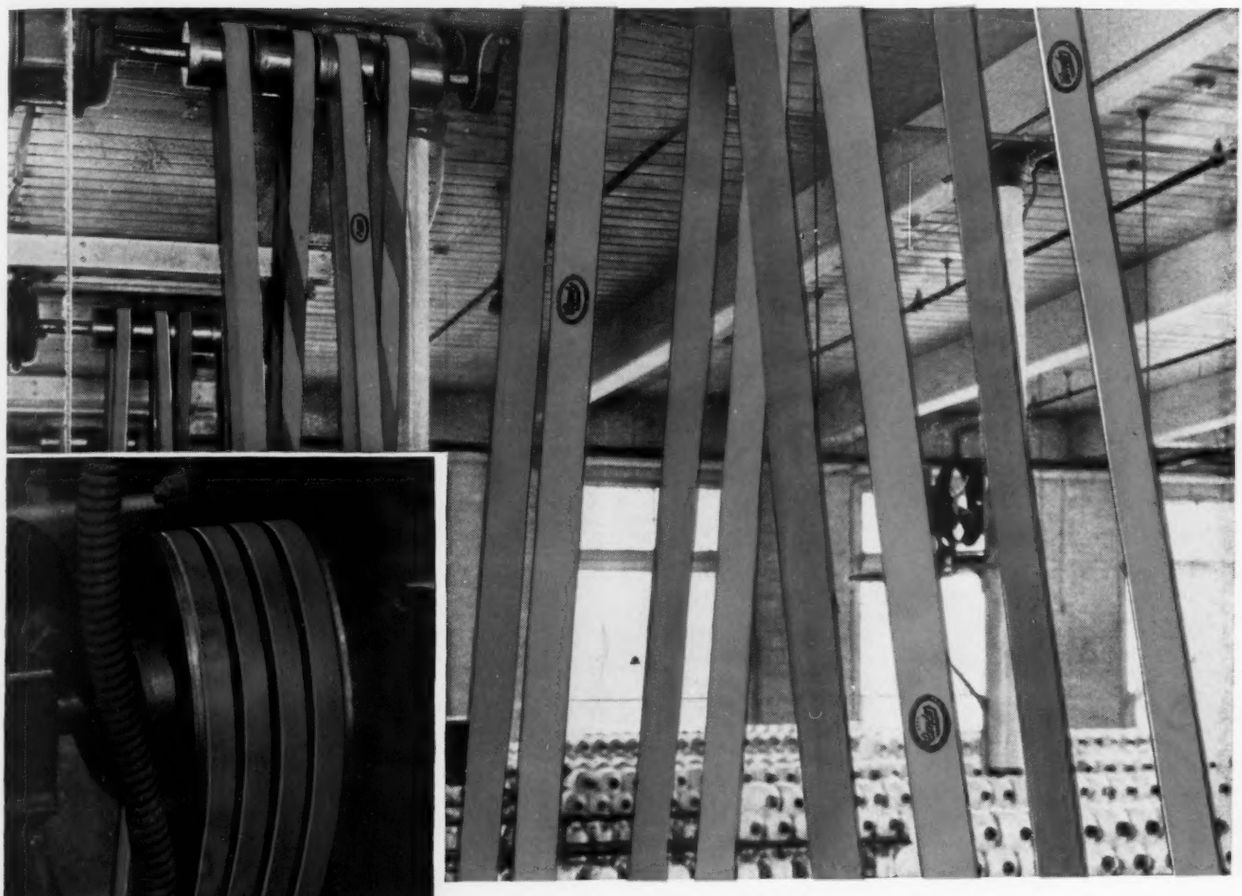
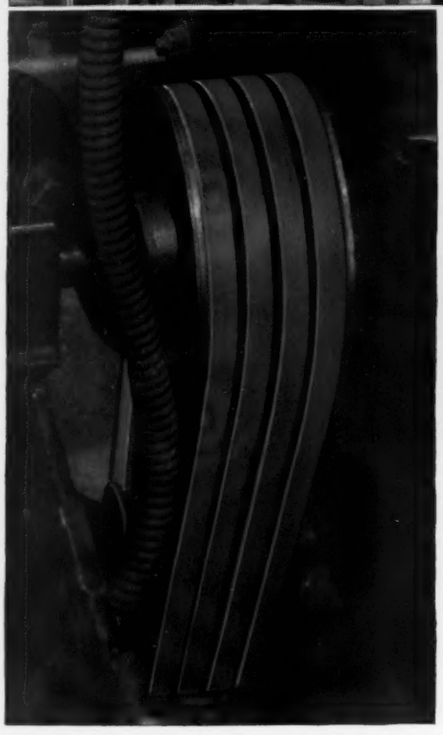
Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Textile Fabrics and Warp Yarns





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500 Textile Mills use Condor Belts

The number of mills now ordering Condor Belts—both flat and V-type—are increasing steadily, because this belting *pays its own way.*

For 39 years, the consistent economies, gained through the use of Condor Textyl Products, have won for them enthusiastic acceptance by leading textile mill owners.

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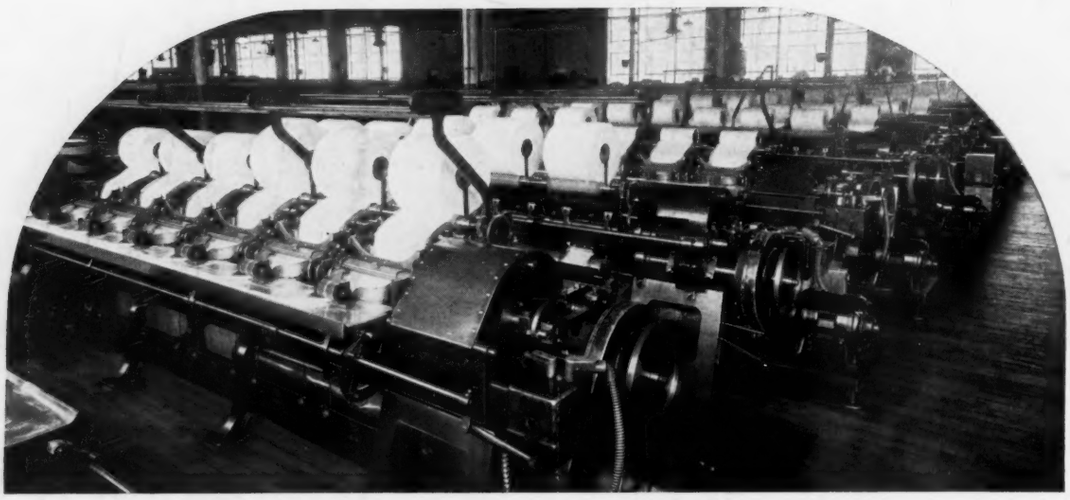
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Executive Offices and Factories, Passaic, New Jersey



Another Reason Why Dixie *Durene* . .
PUTS VALUE INTO YOUR FABRICS

SMOOTHNESS, elasticity, wear depend on long stapled yarns. With short staples, these qualities are mechanically impossible—with long staples they are **spun into** the yarn; easy to put into the fabric.

All Dixie durene is spun from selected Delta cotton. In addition, it is put through the combers illustrated above. These machines remove **every** fibre under the required length and parrallel the remaining long fibres for the following operations necessary to produce the highest quality yarns.

This operation sends 16 to 20 per cent of our cotton stock to the waste bin, but it gives you a chance to knit smooth, elastic, durable fabrics that win buyers' okehs, and bring you repeat orders.

When you want to be **certain** of your value, use Dixie durene.

Dixie Mercerizing Co. Chattanooga, Tennessee

DIXIE Durene . A Product of Controlled Manufacture

Cameron & Pfingst
308 Chestnut Street
Philadelphia, Pa.

Cameron & Pfingst
American Casualty Building
Reading, Pa.

Mr. Fred W. Frank
318 West Adams Street
Chicago, Illinois

Acme Sales Co.
913 Johnston Building
Charlotte, N. C.

Dalglish & Company
City Bank Building
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Perkins and Boland, Inc.
99 Chauncy Street
Boston, Mass.

Mr. J. V. Calhoun
6357 West Fifth Street
Los Angeles, Calif.

Slater's, Ltd.
79 Adelaide Street, East
Toronto, Ont., Canada

Los Fabricantes Unidos, Inc.
225 Broadway
New York, N. Y.

Dixie Mercerizing Company, Export Department, 225 Broadway, Room 1224, New York, N. Y.